Supreme Court, U. S.
FILED
JUN 30 1978
MICHAEL RODAK, JR., CLERK

IN THE

Supreme Court of the United States

OCTOBER TERM, 1977

No. .....

77-1869

ELI LILLY AND COMPANY,

Petitioner,

v.

SMITHKLINE CORPORATION,

Respondent.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT

EDWARD N. SHERRY
Attorney for Petitioner
Eli Lilly and Company
140 Broadway
New York, New York 10005

Of Counsel:

JACK KAUFMANN
J. JAY RAKOW
Dewey, Ballantine, Bushby, Palmer & Wood

JOHN G. HARKINS, JR.
Pepper, Hamilton & Scheetz

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PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT

The petitioner Eli Lilly and Company ("Lilly") respectfully prays that a writ of certiorari issue to review the judgment and opinion entered on April 3, 1978, by the United States Court of Appeals for the Third Circuit in *SmithKline Corporation* v. *Eli Lilly and Company*, No. 77-1232.

Opinions Below

The opinion of the Court of Appeals is reported at 5 Trade Reg. Rep. (CCH) ¶ 62,007, and appears in Appendix C to this petition. The opinion of the District Court is reported at 427 F. Supp. 1089 and appears in Appendix D to this petition.

Jurisdiction

The judgment of the Court of Appeals for the Third Circuit was entered on April 3, 1978, and this petition for certiorari was filed within 90 days of that date. This Court's jurisdiction is invoked under 28 U.S.C. § 1254(1).

Questions Presented

1(a) What conduct by the holder of a lawful monopoly, not otherwise violative of the antitrust laws, constitutes an unlawful act of monopolization in violation of section 2 of the Sherman Act?

(b) Did the Court of Appeals for the Third Circuit err in concluding that Lilly's marketing plan known as the Revised CSP, which admittedly did not violate section 1 of the Sherman Act or section 3 of the Clayton Act, was an unlawful act of monopolization in violation of section 2 of the Sherman Act?

2(a) Are findings of price sensitivity and equal interchangeability among different products necessary to include them in the same relevant market?

(b) Did the Court of Appeals for the Third Circuit err in concluding that cephalosporin antibiotics alone, and not cephalosporins and other antibiotics used interchangeably with cephalosporins, form the relevant product market in this action?

Statutory Provision Involved

Section 2 of the Sherman Act, 15 U.S.C. § 2 (1976):

> "Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a felony, and, on conviction thereof, shall be punished by fine not exceeding one million dollars if a corporation, or, if any other person, one hundred thousand dollars or by imprisonment not exceeding three years, or by both said punishments, in the discretion of the court."

Statement of the Case

A. *Proceedings Below.* On April 1, 1975, petitioner Lilly instituted a marketing program, described more fully below, known as the Revised Cephalosporin Savings Plan ("Revised CSP"), for its cephalosporin antibiotics. (FF 90 at 60a-61a.)* Two weeks later, respondent SmithKline Corporation ("SmithKline") commenced this action in the United States District Court for the Eastern District of Pennsylvania attacking the legality of the Revised CSP. In its Complaint, SmithKline alleged that the Revised CSP constituted:

> (i) a tying arrangement in violation of sections 1 and 3 of the Sherman Act and section 3 of the Clayton Act;
>
> (ii) an act of monopolization in violation of section 2 of the Sherman Act; and
>
> (iii) an abuse and misuse of Lilly's lawfully obtained patents in violation of sections 1, 2 and 3 of the Sherman Act.

The jurisdiction of the District Court was invoked under 28 U.S.C. § 1337.

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* "FF" refers to the District Court's Findings of Fact; page citations identified by the letter "a" refer to the Appendix to this Petition. Portions of the record other than those appearing in the Appendix to this petition are identified by references to the Joint Appendix ("JA") filed in the Court of Appeals, which will be certified to this Court as part of the record below, or by references to the record itself.

SmithKline requested that the District Court preliminarily and permanently enjoin Lilly from selling or offering to sell its cephalosporin antibiotics to any hospital pursuant to any plan under which a hospital received a quantity purchase rebate for Lilly cephalosporin antibiotics on other than a product-by-product basis. SmithKline also requested that the District Court award it three times an unspecified amount of the profits which SmithKline claimed it lost as a result of the Revised CSP. (The Complaint is set forth in full at JA 8-JA 17.)

The District Court refused to grant SmithKline's request for a preliminary injunction. Pre-trial discovery was limited to liability issues and a non-jury trial on liability concluded on January 6, 1976. Final oral argument in the matter was held on March 19, 1976. (30a-31a.)

On November 2, 1976, the District Court filed its opinion. The Court concluded that the Revised CSP was neither a tying arrangement nor an abuse or misuse of Lilly's patents on cephalosporin antibiotics. The Court, however, agreed with SmithKline's contentions that cephalosporins alone form a relevant product market and that the Revised CSP constituted an illegal act of monopolization of that narrow market. In accordance with its opinion, the District Court on December 28, 1976, issued an order (amended on December 29, 1976), which, among other things, permanently enjoins Lilly from selling or offering to sell any of its cephalosporin antibiotics to any hospital pursuant to any plan under which a hospital would receive a quantity purchase rebate for Lilly cephalosporin antibiotics on other than a product-by-product basis. (The Order and Amended Order are set forth in full at 116a-118a.)

A timely interlocutory appeal from the District Court's order pursuant to 28 U.S.C. § 1292(a)(1) was taken to the United States Court of Appeals for the Third Circuit. In an opinion and order dated April 3, 1978, the Court of Appeals affirmed the judgment of the District Court in its entirety, on substantially the same grounds as those expressed in the District Court's opinion.

Lilly now seeks review of the judgment below in this Court.

B. *The Parties.* Plaintiff SmithKline, a Pennsylvania corporation with its principal place of business in Philadelphia, and defendant Lilly, an Indiana corporation with its principal place of business in Indianapolis, are major manufacturers of human ethical pharmaceutical products, including antibiotics, which they sell in interstate and foreign commerce. (FF 1-5, 26 at 36a-37a, 40a.)

C. *Antibiotics.* Antibiotics are one type of anti-infective drug used by physicians in the treatment of infectious diseases in humans. They include ampicillins, carbenicillins, cephalosporins, chloramphenicol, erythromycins, gentamycins, penicillins, tetracyclines, and nitrofurantoins. Other anti-infectives, such as sulfa drugs, are non-antibiotics.* Antibiotics are available in parenteral (injectable, whether intravenous or intramuscular) and oral forms. (FF 26-27 at 40a-41a; JA 1094, JA 795-JA 796.)

Physicians treating hospitalized patients determine which antibiotics should be used. The principal factors involved in that determination are efficacy and safety. Cost is not a significant factor in the choice of an anti-infective drug by a prescribing physician. As the Third Circuit stated, "[p]rescribing physicians are not cost-conscious in their choice of an antibiotic for a hospitalized patient, and so do not opt for a less expensive over a more costly medication." (18a-19a.)

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* Antibiotics are substances produced by microorganisms that are active against other microorganisms. The sulfas, for example, are not antibiotics, as they are chemicals not produced by living organisms. (JA 1240.) For convenience, however, the term antibiotics as used herein includes non-antibiotics such as sulfa drugs.

D. *The Introduction of Cephalosporin Antibiotics.** For over forty years, from the advent of the antibiotic pharmaceutical industry, Lilly has been one of, if not the leading, developer and marketer of such drugs. (JA 673-JA 675.) Lilly continued this history by introducing the first cephalosporin antibiotic, Keflin (cephalothin),** into the United States market in 1964. Subsequently, it added four additional cephalosporin antibiotics: Keflex (cephalexin), Loridine (cephaloridine), Kafocin (cephaloglycin), and Kefzol (cefazolin). As a result of its innovative research and development, Lilly has United States patents on all of its cephalosporin antibiotics except Kefzol (cefazolin). (FF 52-55, 57, 61 at 50a-51a.)

In October, 1973, following the proven success of cephalosporin antibiotics (JA 132), SmithKline introduced its first cephalosporin, Ancef (the generic equivalent of Lilly's cefazolin product Kefzol). In doing so, SmithKline deliberately determined to position Ancef in direct competition with Keflin as well as Kefzol, among other drugs. (FF 56 at 50a-51a; FF 73-75 at 54a-55a; JA 1020.)

Thereafter, in May, 1974, Bristol-Myers Co. introduced Cefadyl (cephapirin), an injectable antibiotic. Subsequently, in August, 1974, E. R. Squibb & Sons introduced Velosef (cephradine), which it markets in oral and injectable form. Then, in October, 1974, SmithKline began marketing Anspor, the generic equivalent of Squibb's Velosef in oral form. As a result, seven cephalosporin antibiotics marketed under nine brand names are presently commer-

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* Cephalosporins are

> ". . . semisynthetic antibacterial agents that are closely related chemically to the penicillins and, like them contain a beta lactam ring as part of the nucleus." [A.M.A. Drug Evaluations 523 (2d Ed. 1973).] (FF 33 at 42a-43a.)

** Products are identified by their brand name first and then, in parentheses, by their generic or chemical name.

cially available from four separate American manufacturers.* (FF 58-60 at 51a, FF 72 at 54a-55a.)

As indicated, some of the cephalosporins currently marketed are generic** equivalents. The District Court found, and no one has disputed, that all cephalosporins may be used interchangeably with one another. (FF 35 at 43a-44a.)

Moreover, as shown below, the undisputed evidence in this case shows that (1) no cephalosporin antibiotic is the drug of choice*** for treatment of any given infection; and (2) there is no infection which can be treated by a cephalosporin antibiotic which in actual practice is not also treated by a wide variety of other antibiotics. Rather, the evidence shows that a wide variety of antibiotics have in fact been used interchangeably with cephalosporins for treatment of infectious diseases or infectious agents.

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* The names of the cephalosporin antibiotics in current use in the United States are listed below. As shown below, Kefzol and Ancef are different brands of the same generic drug cefazolin, and Anspor and Velosef are different brands of the same generic drug cephradine. (FF 72 at 54a.)

Generic Name	*Brand Name*
Injectable	
cephalothin—(1964)	Keflin (Lilly)
cephaloridine—(1967)	Loridine (Lilly)
cefazolin—(1973)	Kefzol (Lilly) and Ancef (SmithKline)
cephapirin—(1974)	Cefadyl (Bristol)
cephradine—(1974)	Velosef (Squibb)
Oral	
cephalexin—(1972)	Keflex (Lilly)
cephaloglycin—(1971)	Kafocin (Lilly)
cephradine—(1974)	Anspor (SmithKline) and Velosef (Squibb)

** Generic equivalents are drugs that have identical chemical structures. (FF 31 at 42a.)

*** The term "drug of choice" identifies the preferred drug for treating an infection when various therapeutic and pharmacological considerations are taken into account. (JA 493-JA 494, JA 516-JA 517, JA 1066.)

E. *Marketing Programs.* In October, 1972, Lilly adopted a marketing program known as the Cephalosporin Savings Plan ("CSP"). At the time the CSP was adopted, no competitor of Lilly marketed cephalosporin antibiotics and none would do so for about a year. Lilly's cephalosporins were competing with other antibiotics and, as the Third Circuit specifically found, the CSP was adopted in order to make Lilly cephalosporin antibiotics more competitive on a price basis with other antibiotics and to expand sales of cephalosporins at the expense of other antibiotics. (11a; FF 79 at 56a-57a; JA 1232 at 37.)

The CSP was simply a form of quantity discount. Essentially, it provided for a rebate to be paid to participating not-for-profit hospitals in the form of certain Lilly merchandise of the hospital's choice at an established rate based solely upon the total number of grams of Lilly cephalosporins purchased by the hospital. (FF 80 at 57a.) The CSP was not challenged by SmithKline in this case and is not in issue here.

Competition from other antibiotics, including additional cephalosporins manufactured by Bristol, Squibb, and SmithKline, began to increase, and Lilly increased its efforts to find ways to make its cephalosporin antibiotics more competitive in the antibiotic market. (FF 79 at 56a-57a.) Consequently, in the second half of 1974, Lilly organized a "Cephalosporin Task Force" to consider possible revisions of the original CSP. The Cephalosporin Task Force recommended a Revised Cephalosporin Savings Plan ("Revised CSP") which Lilly adopted in April, 1975. (FF 90 at 60a-61a.)

The Revised CSP essentially involved the addition of a package pricing component to the quantity discount component of the original CSP. Thus, the Revised CSP, like the original CSP, provided for a rebate ("base dividend") to be paid to participating not-for-profit hospitals in the

form of certain Lilly merchandise of the hospital's choice at an established rate based upon the total number of grams of Lilly cephalosporins purchased by the hospital.* However, in addition the Revised CSP provided for an additional 3% rebate ("bonus dividend") to be paid upon the hospital's total cephalosporin purchases if the hospital bought established minimum quantities of each of any three of Lilly's five cephalosporin antibiotics. (FF 90 at 60a-61a.) Those minimum quantities represented a very small percentage of the hospital's total cephalosporin purchases.**

Thus if, for example, a hospital purchased a total of 15,000 grams of Lilly cephalosporin antibiotics in a given quarter, it would be entitled to a base dividend of 2%. In addition, if its purchases included at least 400 grams of each of any three of Lilly's five cephalosporin antibiotics, it was entitled to a bonus dividend of 3%. (FF 91 at 61a.)

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* The rates at which rebates were paid upon a given number of grams of Lilly cephalosporins purchased were somewhat lower than the rates at which rebates were paid for the purchase of the same number of grams under the original CSP.

** The base dividend and bonus dividend schedules were as follows (FF 91 at 61a):

Base Dividend Level	*Base Dividend Qtr. Purchase (Total Grams)*	*Bonus Dividend Level*	*Bonus Dividend Qtr. Purchase (Total Grams)*
0%	0- 7,999	3%	150
1%	8,000-10,999	3%	300
2%	11,000-16,999	3%	400
3%	17,000-22,999	3%	500
4%	23,000-29,999	3%	750
5%	30,000-38,999	3%	1,000
6%	39,000-47,999	3%	1,250
7%	48,000-71,999	3%	1,500
8%	72,000-95,999	3%	1,750
9%	96,000-or more	3%	2,000

It is this bonus dividend of 3% which is the subject of this action.*

As the District Court found (FF 95 at 62a-63a), and the Third Circuit agreed (14a, n.3), the Revised CSP, as adopted and implemented, did not contain:

> (i) any provision requiring that any hospital purchase any Lilly product in order to obtain any other Lilly product;
>
> (ii) any provision requiring that any hospital refrain from purchasing any product from any source in order to obtain any Lilly product; or
>
> (iii) any provision which conditions the payment of any rebate on the purchase of any Lilly product, otherwise unavailable to the purchaser, upon an agreement that a hospital shall refrain from purchasing any product from any source.

Rather, all of Lilly's cephalosporin antibiotics were separately available for purchase, at reasonable prices, by any hospital in the United States, whether or not it participated in the Revised CSP, and whether or not it purchased any other Lilly cephalosporin or any other Lilly product. For example, both before and after the adoption of the Revised CSP, hospitals purchased substantial volumes of Lilly's patented cephalosporin antibiotics Keflin and Keflex without participating in either the CSP or the Revised CSP. (Ex. D-1143.)

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* SmithKline never contended in its pleadings or presented any evidence that the original CSP, identical to the cumulative volume rebate aspect of the Revised CSP but providing higher rebates, was an antitrust violation. Indeed, SmithKline has used similar marketing plans for its cephalosporin antibiotics. Moreover, the District Court specifically held that price competition existed when the original CSP was in effect (110a), and limited its finding of monopolization to the period "since April 1, 1975, the date of the institution of the Revised CSP." (31a.)

Lilly was not alone in instituting marketing programs in order to make cephalosporin antibiotics more competitive with other antibiotics. SmithKline, for example, adopted several programs under which it, too, offered price discounts or rebates of pharmaceutical products to hospitals based on the quantity of SmithKline cephalosporins purchased by a hospital. Under one of these programs, known as the Price Insurance Plan ("PIP"), SmithKline initially granted to hospitals a rebate equal to 5% of their Ancef purchases if those purchases exceeded 500 grams of Ancef per quarter, and also provided an additional 5% rebate for each individual order of 500 vials or more of Ancef. After SmithKline introduced Anspor and began marketing both it and Ancef in direct competition with Lilly's leading cephalosporin antibiotics, Keflin, Keflex, and Kefzol, among other antibiotics, the PIP was revised so that hospitals were eligible for rebates in an amount equal to 5% of their combined Ancef-Anspor purchases if those combined purchases exceeded 500 grams per quarter. Moreover, the additional 5% rebate for each individual order of 500 vials or more of Ancef remained available. (FF 79 at 56a-57a.) In April, 1975, just prior to the commencement of this lawsuit, SmithKline again modified its PIP so that hospitals were no longer eligible for a 5% rebate based on a combined Ancef-Anspor purchase of 500 grams or more. Rather, although hospitals were still eligible for their regular Ancef rebate, they were required to purchase 500 grams of Anspor within a quarter to qualify for a 5% Anspor rebate. (FF 96 at 63a-64a.)

Following the introduction of the Revised CSP, SmithKline's sales of cephalosporins continued to increase. Monthly sales of Ancef for every month in 1975 through August, the most recent figures available at the time of trial, exceeded sales in the corresponding months in 1974, and sales of Anspor in the second quarter of 1975 almost doubled those in the first quarter of 1975. Moreover, sales

of Ancef following the introduction of the Revised CSP were made at substantially the same net prices as those prior to its introduction. (JA 1250; SmithKline Response to Lilly Interrogatory No. 70.)

Reasons for Granting the Writ

I. The Lawful Boundaries of Business Conduct by a Holder of a Legally Acquired Monopoly Is a Substantial Federal Question Requiring Decision by This Court.

A. No Adequate Standard of Conduct Under Section 2 of the Sherman Act Has Been Established.

Since the Sherman Act was enacted in 1890, this Court has of course had many occasions to determine the types of conduct which violate section 1 of that Act. Moreover, it was early concluded that conduct which violates section 1 of the Act would also violate section 2 of the Act if done by the holder of a monopoly or in an attempt to monopolize a particular market. *E.g., Standard Oil Co. of N.J.* v. *United States,* 221 U.S. 1 (1911); *United States* v. *American Tobacco Co.,* 221 U.S. 106 (1911).

Although this Court has frequently stated in general terms that anticompetitive conduct by a monopolist will violate section 2,* it has decided only a handful of cases dealing with allegations that conduct not involving violations of section 1 was unlawful under section 2, and most of those cases have dealt with instances where a monopoly was

* For example, perhaps the most frequently cited statement of this Court declares that "the willful acquisition or maintenance of [monopoly] power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident" violates section 2. *United States* v. *Grinnell Corp.,* 384 U.S. 563, 570-71 (1966). However, *Grinnell* involved a classic conspiracy in restraint of trade by four defendants which was found to be a *per se* violation of section 1 as well as section 2.

alleged to have been illegally attempted or attained. In only three cases* has this Court considered any aspect of the issue presented by this case: what acts by a holder of a legally acquired monopoly, not otherwise violative of section 1 of the Sherman Act, constitute illegal monopolization under section 2 of the Sherman Act. Each of those cases, however, involved refusals to deal by a monopolist, and provide no guidance in the present case, which does not involve refusals to deal but rather Lilly's marketing practices under the Revised CSP.

Nor has any clear authority been established by the lower federal courts to determine what course of conduct is available to the holder of a legal monopoly. Apart from cases involving predatory pricing (usually defined to mean sales below cost) no clear pattern of acceptable conduct emerges. Indeed, only in *Telex Corp.* v. *International Business Machines Corp.,* 510 F.2d 894 (10th Cir.), *cert. dismissed,*** 423 U.S. 802 (1975), was the issue squarely presented, and in that case, in a holding directly contrary to the present case, the Tenth Circuit held that a monopolist is not foreclosed from engaging in non-predatory price competition.

The question of what scope of competitive conduct is available to the holder of a lawful monopoly has assumed even greater importance since in recent years a number of significant private and public section 2 actions dealing with that issue have been brought and are pending in the lower courts.*** The increasing number of section 2 cases

* *Otter Tail Power Co.* v. *United States,* 410 U.S. 366 (1973); *Lorain Journal Co.* v. *United States,* 342 U.S. 143 (1951); and *United States* v. *Griffith,* 334 U.S. 100 (1948).

** Although a petition for certiorari was filed with this Court, it was dismissed on stipulation of the parties.

*** *E.g., Berkey Photo, Inc.* v. *Eastman Kodak Company,* No. 73 Civ. 424 (S.D.N.Y., filed January 29, 1973); *GAF Corp.* v. *Eastman Kodak Company,* No. 73 Civ. 1893 (S.D.N.Y., filed April 30,

(footnote continued on following page)

underscores the need for this Court to establish what conduct the holder of a legally acquired monopoly may engage in.

In the present case, Lilly's monopoly (assuming *arguendo* that the relevant market consists only of cephalosporin antibiotics) was concededly legally acquired and maintained prior to the introduction of the Revised CSP.* The only new element contained in the Revised CSP was a package pricing plan, similar to those repeatedly upheld by this Court in such cases as *Northern Pacific Ry.* v. *United States*, 356 U.S. 1, 6 n. 4 (1958) and *U.S. Steel Corp.* v. *Fortner Enterprises, Inc.*, 429 U.S. 610 (1977) ("Fortner II"), which both the District Court and the Third Circuit conceded did not violate section 1 of the Sherman Act or section 3 of the Clayton Act. No issue of predatory or below-cost pricing was even raised. Nevertheless, the Third Circuit concluded, in a single paragraph, without meaningful discussion and without citation to a single authority, that Lilly's Revised CSP violated section 2 of the Sherman Act. (22a.)

In the absence of any meaningful guidance from this Court as to what conduct by the holder of a legally acquired monopoly is permitted under section 2 of the Sherman

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(footnote continued from preceding page)

1973); *IBM Peripheral EDP Devices Antitrust Litigation*, No. 163 (JPMDL 1976); *SCM Corporation* v. *Xerox Corporation*, No. 15807 (D. Conn., filed July 31, 1973); *United States* v. *American Tel. & Tel. Co.*, No. 74-1698 (D.D.C., filed November 20, 1974); *United States* v. *Everest & Jennings International*, No. 77-1648-R (C.D. Cal., filed May 6, 1977); *United States* v. *International Business Machines Corp.*, No. 69 Civ. 200 (S.D.N.Y., filed January 17, 1969); *In re Kellogg Company*, F.T.C. Docket No. 8883 (filed April 26, 1972).

* For example, the Third Circuit stated that "Although [Lilly] enjoyed the status of a legal monopolist when it was engaged in the manufacture and sale of its original patented products, that status changed when it instituted the Revised CSP." (23a.)

Act, the decision of the Third Circuit, if allowed to stand, will result in confusion and a lessening of competition by prohibiting, or at least leaving open to question, virtually any conduct by the holder of a lawful monopoly, even where, as shown below, such conduct is otherwise legal and results in price competition to the benefit of consumers.

B. The Revised CSP Is Not an Illegal Act of Monopolization.

This Court has stated that the offense of monopoly under section 2 of the Sherman Act requires not only the possession of monopoly power in the relevant market but also "the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident." *United States* v. *Grinnell Corp.*, 384 U.S. 563, 570-71 (1966). In other words, the existence of the power to control prices and exclude competition does not, by itself, constitute unlawful monopolization. Rather, where, as here, a monopoly has been legally obtained, there must be proof that competitors were foreclosed from the market by predatory or exclusionary acts other than normal competitive practices. *E.g., Telex Corp.* v. *International Business Machines Corp., supra*, 510 F.2d 894 (10th Cir.), *cert. dismissed*, 423 U.S. 802 (1975); *United States* v. *United Shoe Machinery Corp.*, 110 F. Supp. 295 (D. Mass. 1953), *aff'd per curiam*, 347 U.S. 521 (1954).

In finding that the Revised CSP constituted an exclusionary act of monopolization, the Third Circuit did not discuss the issue or cite any authority, apparently relying on the analysis of the District Court. The District Court, for its part, misconstrued the operation and effect of the Revised CSP by ignoring its own findings as to the competition among cephalosporins, and misapplied the law with regard to acts of monopolization.

As illustrated earlier, *supra*, pp. 8-9, the Revised CSP was a modification of Lilly's previous CSP* whose only new feature was a package pricing plan. Under the Revised CSP, in addition to receiving specified quantity discounts when their combined total purchases of any or all Lilly cephalosporins exceeded a specified amount of grams, as with the original CSP, purchasers received an additional discount when they bought a "package", consisting of any three of Lilly's five cephalosporins in excess of certain minimum quantities.

The District Court found, and the Third Circuit agreed, that the Revised CSP did not constitute a tying arrangement or any other type of conduct violative of section 1 of the Sherman Act or section 3 of the Clayton Act because, as stated by the Third Circuit:

> "The district court found, and it is not disputed, that Lilly did not condition the availability of any of its products on the purchase of any other of its products or on the refusal of purchasing hospitals to deal with its competitors. Thus, Lilly did not 'tie' purchases of Kefzol to purchases of Keflin or Keflex." (14a.)

The Third Circuit necessarily also found, as a corollary to its finding that cephalosporins comprise a relevant product market, that all cephalosporin drug products were interchangeable. Moreover, the District Court found, and neither SmithKline nor the Third Circuit disputed, that SmithKline positioned Ancef directly against Keflin, and indeed 80% of SmithKline's sales of Ancef were at the expense of Lilly's Keflin, rather than Kefzol. (FF 73, 75, 77 at 54a-56a; FF 88 at 60a.) In addition, it is undisputed that SmithKline's Anspor competed directly with Lilly's Keflex.

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* Both the District Court and the Third Circuit, of course, recognized that the original CSP did not violate section 2. (*See* 22a-23a; 31a; 110a.)

The significance of these findings is this: since hospitals were concededly not required to accept the Lilly package, all hospitals were free to purchase SmithKline's Ancef and/or Anspor in place of any three, or all five, Lilly cephalosporins at prices less than Lilly's even under the Revised CSP. In other words, a hospital could purchase its full range of cephalosporin requirements from SmithKline cheaper than from Lilly. In light of this crucial fact, the errors of the courts below become apparent.

1. *The Operation and Effect of the Revised CSP.* In assessing the competitive impact of the Revised CSP on SmithKline, the District Court, and hence the Third Circuit, relied entirely on a report prepared on behalf of SmithKline by the Boston Consulting Group which was based upon the assumption that, contrary to the court's own findings enumerated above, SmithKline's Ancef competed only against Lilly's Kefzol, its generic equivalent, and not against Keflin, and that SmithKline's Anspor did not compete against Lilly's Keflex. As a result of this erroneous assumption, the entire bonus rebate earned by a hospital on all of its Lilly cephalosporins was attributed to Kefzol to reduce its effective price, and that artificially constructed low price was the price the Boston Consulting Group and the District Court used to assess whether SmithKline could compete with the Revised CSP. (See FF 109 at 67a-68a; 100a-101a.)

Had the District Court adhered to its own findings that Ancef competes with Keflin rather than just Kefzol (FF 73, 75, 77 at 54a-56a; FF 88 at 60a), and that cephalosporins are interchangeable, it would have realized that there was no justification for attributing all bonus rebates earned on purchases of Lilly cephalosporins to Kefzol in analyzing the effect of the Revised CSP on SmithKline. The bonus rebate can only be used once in analyzing its impact. If the entire bonus rebate of 3%, earned on all of a hospital's purchases of cephalosporins, including its purchases of Keflin, is applied to a single cephalosporin, Kefzol, to lower its ef-

fective price, then no part of that rebate could be attributed to Keflin, and Keflin would be increasingly subject to price competition from and replacement by Ancef, which SmithKline priced 7% below Keflin. (FF 74 at 55a.) Similarly, Keflex would be subjected to price competition from and replacement by Anspor.

In view of the competition between SmithKline's and Lilly's cephalosporins, the bonus rebate must be allocated on a product by product basis, with the result that the average effective price of each Lilly cephalosporin purchased by a hospital under the Revised CSP will be lowered by 4%. (JA 1042, JA 782.) On the other hand, SmithKline's average rebate under its PIP plan was 7½%. (JA 1248 at p. 16.) It is obvious, therefore, that a hospital could purchase all of its cephalosporin requirements from SmithKline at a lower cost than if it purchased those requirements from Lilly.*

In light of its undisputed findings that cephalosporins are interchangeable with one another and that Ancef and Anspor compete with Keflin and Keflex, the District Court's assumption that the entire bonus rebate under the Revised CSP may be attributed to Kefzol, and its resulting conclusion that SmithKline will suffer negative returns of –10.2% of Ancef sales to average hospitals and –3.4% of Ancef sales to large hospitals (FF 109 at 67a-68a), ignore the realities of the market and merely serve to illustrate the general confusion and internal inconsistencies which characterize the opinions of the District Court and the Third Circuit.**

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* Lilly was able to compete with SmithKline's lower average net prices in part because of its reputation with physicians (particularly surgeons) (FF 100 at 64a) and SmithKline's inexperience in selling antibiotics (FF 62 at 51a; FF 68 at 53a) and in selling to hospitals. (FF 71 at 53a.)

** For the same reasons, the District Court's finding that "hospital-consumers have been damaged by their inability to obtain

(footnote continued on following page)

2. *Lilly's "monopoly power" over Keflin and Keflex.* Having failed to find a tie-in or any other conduct violative of section 1 of the Sherman Act or section 3 of the Clayton Act, both the Third Circuit and the District Court proceeded to base their findings of illegal monopolization on the theory that Keflin and Keflex allegedly faced no competition.

For example, the Third Circuit held that "the act of willful acquisition and maintenance of monopoly power was brought about by linking products on which Lilly faced no competition—Keflin and Keflex—with a competitive product, Kefzol." (22a.)

Similarly, the District Court held that Lilly "used its monopoly power in Keflin and Keflex to stifle competition posed by a less favorably situated competitor (SmithKline) in the cephalosporin marketplace." (96a.)

However, the conclusion that Keflin and Keflex faced no competition is clearly erroneous. Since both courts found that all cephalosporins were interchangeable (since they were found to be in the same relevant market), and that 80% of Ancef sales were at the expense of Keflin rather than Kefzol, it is utterly absurd, in the context of a relevant market consisting of (at least) all cephalosporins, to speak of "monopoly power" in a single product within that relevant market.

Keflin and Keflex were patented, as the courts below recognized. (10a, 22a-23a; FF 61 at 51a; 95a-96a, 111a.) However, it does not follow that Lilly faced no competition

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(footnote continued from preceding page)

lower Keflin prices which would have resulted from a one-on-one price competition between Ancef and Keflin in the absence of the Revised CSP" (FF 122 at 71a) is also clearly erroneous. As shown above, nothing contained in the Revised CSP prevented competition between Ancef and Keflin; the District Court specifically found that such competition in fact existed (FF 88 at 60a); and hospitals did obtain lower Keflin prices in the form of rebates under the Revised CSP.

in those products. As one commentator has stated:

> "A patent, although creating a legal monopoly *of the patented art,* does not do away with the need to show possession or intent to acquire that degree of market power called monopoly. The existence of monopoly power cannot be inferred merely from the possession of one or more patents. The protected invention or process may be very narrow. By excluding others from it the patentee may attain very little market power, for there may be numerous other products or processes not covered by the patent which are commercially feasible substitutes . . ." L. Sullivan, *Antitrust* 507 (West 1977) (emphasis added).

This Court reached the same conclusion in *Walker Process Equipment, Inc.* v. *Food Machinery & Chemical Corp.,* 382 U.S. 172, 177-78 (1965). In that case, this Court held that conduct alleged to constitute an act of monopolization must be evaluated in the context of the relevant market as defined for section 2 purposes, and the existence of a patent does not prove monopoly power in that relevant market, because there may be substitutes for that patented product. Thus, one may speak of "monopoly power" in a single product for section 2 purposes only if that product forms its own relevant market, not where it is one of several products in a relevant market.

In short, either cephalosporins are interchangeable or they are not interchangeable. Both the Third Circuit and the District Court found that they are interchangeable, and the effect of such a finding is to render meaningless the finding of an act of monopolization consisting of the use of "monopoly power" in individual products within the relevant market whether or not they are patented.

3. *The price competition resulting from the Revised CSP.* Finally, even if, contrary to the District Court's own findings, Ancef did not compete with Keflin, and

Anspor did not compete with Keflex, the Revised CSP would still not be an act of monopolization, but simply a form of price competition.

Price competition is, of course, encouraged by the antitrust laws, and even a monopolist may lower his prices to be competitive, at least so long as he receives a reasonable rate of return on his sales. *Telex Corp.* v. *International Business Machines Corp., supra,* 510 F.2d 894 (10th Cir.), *cert. dismissed,* 423 U.S. 802 (1975); *see* Areeda & Turner, *Predatory Pricing and Related Practices under Section 2 of the Sherman Act,* 88 Harv. L. Rev. 697 (1975); Note, *Telex* v. *IBM: Monopoly Pricing under Section 2 of the Sherman Act,* 84 Yale L. J. 558 (1975).

In *Telex, supra,* the Tenth Circuit confronted the unresolved issue of what pricing actions the holder of a lawfully acquired monopoly may take under section 2 of the Sherman Act. Telex Corporation alleged that IBM, by selectively reducing its prices on products competing with Telex, while increasing its prices on other products, engaged in illegal acts of monopolization in violation of section 2. The trial court characterized IBM's acts as predatory and ruled in favor of Telex. The Tenth Circuit reversed.

The Tenth Circuit assumed, for purposes of discussing the alleged acts of monopolization, that IBM possessed monopoly power in the relevant market. The Court then asked whether a monopolist can "reduce prices not below a point where they will derive a reasonable profit," 510 F.2d at 926, and answered the question affirmatively:

> "There must be some room to move for a defendant who sees his market share acquired by research and technical innovations being eroded by those who market copies of its products. It would seem that technical attainments were not intended to be inhibited or penalized by a construction of section 2 of the Sherman Act to prohibit the adoption of legal and

ordinary marketing methods already used by others in the market, or to prohibit price changes which are within the 'reasonable' range, up or down." 510 F.2d at 927.

In the present case, it is undisputed that, far from pricing below its costs, Lilly was selling its cephalosporins at an adequate profit. (FF 107-108 at 67a.) The Revised CSP was a competitive pricing practice—package pricing—which arose out of the realization that Lilly faced competition not only from other antibiotics but from SmithKline's cephalosporins as well. The plan merely represented an effort to make each individual Lilly product more competitive on a price basis. Indeed, even assuming, as the District Court erroneously did, that the Lilly rebates on all of its cephalosporins should be attributed entirely to Kefzol in assessing the impact of the Revised CSP on SmithKline, the only effect would be to reduce the net price on Kefzol, and SmithKline has never contended that sales of Kefzol at such resulting net prices, whether done directly or by means of rebates from whatever source,* would be too low to provide a reasonable return to Lilly,** or are lower than those expressly permitted in *Telex*.

In short, the Third Circuit condemned the Revised CSP as an act of monopolization despite the fact that the Revised CSP was a form of normal price competition—

* Of course, to differentiate between rebates on the one hand and direct price reductions on the other, as the District Court attempted to do in discussing *Telex* (106a-110a), would be to exalt form over substance.

** Insofar as the District Court suggested (FF 107, 109 at 67a-68a; 107a-109a) that Lilly may not lower its effective price on Kefzol to a point where Lilly is still earning an adequate return, but SmithKline, in order to meet that price, cannot earn an adequate return because of its higher costs, the District Court's findings seek to protect competitors rather than competition and are at variance with the purposes of the antitrust laws.

package pricing—which did not violate section 1 of the Sherman Act or section 3 of the Clayton Act. In doing so, it confused the concept of monopolization of a relevant market with a monopoly over the art represented by a patented product. This Court should grant the writ of certiorari to review the judgment of the Third Circuit, both because of the errors committed by the Third Circuit and to establish the range of competitive conduct permitted a monopolist with a lawfully acquired monopoly under section 2 of the Sherman Act.

II. The Third Circuit Adopted a New Standard in Conflict With the Standards Set by This Court in Defining the Relevant Market to Include Only Cephalosporins.

This Court has on a number of occasions enunciated the standards to be applied in determining the appropriate relevant market in cases brought under section 2 of the Sherman Act. The leading case, of course, is *United States* v. *E.I. du Pont de Nemours & Co.*, 351 U.S. 377 (1956) ("the *Cellophane* case"), which established a test of reasonable interchangeability of use in determining relevant market.

As shown below, in the present action the Third Circuit committed plain error by adopting a new and different standard in conflict with the standards of the *Cellophane* case. Among other things, it held that, contrary to the specific holdings of both the *Cellophane* case and *Brown Shoe Co.* v. *United States*, 370 U.S. 294 (1962), price sensitivity is an essential element in determining relevant market, despite the fact that it was undisputed that cost is not a significant factor in selecting antibiotics, and despite the fact that undisputed evidence showed substantial actual interchangeability among all antibiotics.

If the Third Circuit's decision that a demonstration of price sensitivity is necessary to define relevant market is

allowed to stand, in direct conflict with the decisions of this Court, it will cause considerable uncertainty as to the correct definition of relevant market in all cases brought under section 2 of the Sherman Act or section 7 of the Clayton Act. Thus, the question of the correct standard to be applied in relevant market cases, particularly with regard to the issue of price sensitivity, is an important federal question which this Court should clarify.

As shown below, when the correct standard is applied to the present action, the proper relevant market will necessarily be found to consist of all antibiotics and not cephalosporins alone.

A. The Applicable Standards for Determining Relevant Market.

In *United States* v. *E. I. du Pont de Nemours & Co., supra,* this Court enunciated the now classic test for determining the relevant market in actions brought pursuant to section 2 of the Sherman Act:

> "In considering what is the relevant market for determining the control of price and competition, no more definite rule can be declared than that commodities reasonably interchangeable by consumers for the same purposes make up that 'part of the trade or commerce,' monopolization of which may be illegal." 351 U.S. at 395.

In the *Cellophane* case, the Court considered whether sales of cellophane, manufactured by du Pont and others under patented processes, constituted a relevant market for purposes of determining whether a violation of section 2 of the Sherman Act had occurred. The District Court had determined that such sales did not, in fact, form the relevant product market and that du Pont, which produced almost 75% of the cellophane sold in the United States, had not violated section 2 of the Sherman Act. This

Court agreed and affirmed, holding that sales of "flexible packaging" materials constituted the relevant product market.

In reaching that conclusion, this Court expressly rejected a relevant product market test proposed by the Government to the effect that only "substantially fungible" and "like priced" products should be included in the relevant market. 351 U.S. at 380.* As the Court pointed out:

> ". . . where there are market alternatives that buyers may readily use for their purposes, illegal monopoly does not exist merely because the product said to be monopolized differs from others. If it were not so, only physically identical products would be a part of the market." 351 U.S. at 394.

Rather, the Court emphasized:

> "In determining the market under the Sherman Act, it is the use or uses to which the commodity is put that control." 351 U.S. at 395-96.

The Court then found that although cellophane differed in many ways, including price and possible end uses, from other flexible packaging materials, and was superior to some and inferior to others with regard to its qualities and uses, nevertheless, it had to meet competition from other flexible packaging materials in each of its uses, and thus, did not alone comprise a relevant product market.

Numerous subsequent decisions reaffirm that the reasonable interchangeability of use test set forth in the *Cellophane* case is the proper standard for determining relevant market for antitrust purposes. For example, in *United States* v. *Grinnell Corp.,* 384 U.S. 563 (1966), an

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* As demonstrated below, the District Court in this action applied a test that results in a market limited to substantially fungible and like-priced products such as that rejected in the *Cellophane* case.

action brought pursuant to § 2 of the Sherman Act, this Court, citing the *Cellophane* case approvingly, held that various different types of central station property protection services, including automatic fire alarm, waterflow alarm and sprinkler supervision, and watchman's reporting and manual fire alarm services formed the relevant product market. In so holding, the Court noted:

> "We see no barrier to combining in a single market a number of different products or services where that combination reflects commercial realities." 384 U.S. at 572.

Similarly, in *Brown Shoe Co.* v. *United States,* 370 U.S. 294 (1962), an action brought pursuant to § 7 of the Clayton Act, this Court held that men's women's and children's shoes each formed a relevant line of commerce for antitrust purposes. The Court noted, among other things, that men's, women's and children's shoes each have characteristics peculiar to themselves rendering them "generally noncompetitive with the others" and that "each is, of course, directed toward a distinct class of customers." 370 U.S. at 326. The Court refused, however, to further subdivide these markets on the basis of " 'price/quality' . . . distinctions" on the ground that such subdivision "would be unrealistic" and "would be equivalent to holding that medium-priced shoes do not compete with low-priced shoes." 370 U.S. at 326. As the Court noted:

> ". . . the boundaries of the relevant market must be drawn with sufficient breadth to include the competing products of each of the merging companies and to recognize competition where, in fact, competition exists." 370 U.S. at 326.

In sum, the reasonable interchangeability of use test set forth in the *Cellophane* case is the test for determining relevant market for antitrust purposes. Indeed, the District Court conceded this. (83a, JA 394-JA 395.) Nevertheless, in the present case, the courts below committed two errors in defining the relevant market, each of which, standing alone, is sufficient ground for reversal.

First, after finding that cost is an insignificant factor in the selection of an antibiotic by a physician, the Third Circuit gave controlling weight to the alleged lack of price sensitivity between cephalosporins and other antibiotics in determining that cephalosporins alone comprise the relevant product market.

Second, the courts below applied an erroneous test of equal interchangeability which resulted in a market limited to substantially fungible and like-priced products notwithstanding the rejection of such a standard by this Court in the *Cellophane* case.

B. The Third Circuit's Error in Relying Upon the Alleged Lack of Price Sensitivity.

SmithKline contended, and the District Court found, that cost is an insignificant factor in the choice of an antibiotic by a physician. (FF 39 at 45a.) Notwithstanding this finding, the Third Circuit placed substantial, if not controlling emphasis on the District Court's finding of a lack of price sensitivity* between cephalosporins and other antibiotics in concluding that cephalosporins alone comprise the relevant market.

Indeed, the Court of Appeals devoted a significant portion of its opinion to a discussion concerning the lack of price sensitivity. (18a-19a.) This was plain error because, obviously, significant price sensitivity between products will not be found where cost is not a factor in the choice between those products.

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* Lilly does not here concede that the District Court's finding of a lack of price sensitivity was correct, since the evidence established that there was indeed price sensitivity between cephalosporins and other antibiotics. (JA 414-JA 417; JA 467-JA 470, JA 477-JA 478, JA 795-JA 796, JA 847, JA 877.)

As previously noted, in the *Cellophane* case, *supra,* this Court stated that interchangeability of use was the test for determining the relevant market, and that in "determining the market under the Sherman Act, it is the use or uses to which the commodity is put that control." 351 U.S. at 396. That price sensitivity is merely one factor which may be looked to in determining relevant market was made clear in *Cellophane,* 351 U.S. at 400, and in *Brown Shoe Co.* v. *United States, supra,* 370 U.S. at 325.

The Third Circuit's error results from a misunderstanding of this Court's use of the term "cross-elasticity of demand" in the *Cellophane* and *Brown Shoe* decisions. In those cases, this Court used the term "cross-elasticity of demand" to mean the same thing as interchangeability of use. Thus, in *Cellophane,* this Court stated:

> "An element for consideration as to cross-elasticity of demand between products is the responsiveness of the sales of one product to price changes of the other." 351 U.S. at 400.

Similarly, in *Brown Shoe,* the Court stated:

> "The outer boundaries of a product market are determined by the reasonable interchangeability of use or the cross-elasticity of demand between the product itself and substitutes for it." 370 U.S. at 325.

The Court then specified that "sensitivity to price changes" was *but one* of seven "practical indicia" which might be evaluated in making that determination. *Id.*

However, the term "cross-elasticity of demand" is sometimes used by economists in a narrower sense to be synonymous *not* with reasonable interchangeability of use, as used by this Court in the *Cellophane* and *Brown Shoe* cases, but rather with price sensitivity. Thus, the Court of Appeals in the present case read the term "cross-elasticity of demand" in the narrower sense rather than in the sense

the term was used by this Court and stated:

> "Elasticity of demand for a product has been defined as the degree by which the amount of a product purchased will change in response to changes in its price." (18a.)

As a result of its reading of the term "cross-elasticity" to be synonymous with price sensitivity rather than interchangeability of use, the Third Circuit held that unless price sensitivity between different products is demonstrated those products cannot be in the same relevant market. That holding, of course, is directly contrary to the holdings of this Court specifying that price sensitivity is but one factor which may be considered in determining interchangeability of use and hence, the relevant market.

Moreover, that holding is even contrary to one of the Third Circuit's own findings. In its opinion, the Third Circuit stated:

> "The greater the positive cross-elasticity of demand between two products is, the closer substitutes they are." (18a.)

As the Third Circuit's own finding recognizes, the ultimate relevant market issue is substitutability, or interchangeability, and price sensitivity is but a means of demonstrating that interchangeability.*

The present case presents an unfortunate example of how reliance on price sensitivity can lead to an incorrect and confusing result. It is absurd to give any significant weight, as the Third Circuit did in this case, to a lack of price sensitivity between products in determining whether they may be included in the same relevant market, in the face of a finding that cost is an insignificant factor

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* As shown below, where direct evidence of interchangeability is available, as in this case, a finding of price sensitivity is unnecessary.

in the choice between those products in the marketplace. Taken to its logical conclusion, the Third Circuit's holding as to price sensitivity in this case would require that in any marketplace in which cost is not a significant factor, each product comprises its own relevant market.

Indeed, if price sensitivity were an essential factor, then the finding here of a relevant market consisting of all cephalosporins would *still* be incorrect because the record is devoid of any meaningful evidence showing that any one cephalosporin was responsive to price changes of any other cephalosporin. In fact, both the District Court and the Third Circuit found that cost is not a significant factor in the selection of an antibiotic. (FF 39 at 45a; 18a-19a.) Hence, if price sensitivity is a critical factor in determining relevant market, then the Third Circuit would have had to conclude that each cephalosporin forms a separate relevant market, which of course it could not do because it is undisputed that, for example, Ancef competes with Keflin, and Anspor with Keflex.

As shown in Point C below, the overwhelming evidence in this case showed that cephalosporins, in actual practice, are used interchangeably with other antibiotics. By ignoring that evidence and by giving controlling weight to the alleged lack of price sensitivity, the Third Circuit completely ignored the realities of the competition existing in the antibiotic marketplace.

C. The Erroneous Equal Interchangeability Standard Applied by the Courts Below.

The courts below applied an erroneous test of equal interchangeability which resulted in a market limited to substantially fungible and like-priced products, notwithstanding the rejection of that standard by this Court in the *Cellophane* case.

As shown above, in the *Cellophane* case, cellophane and several other wrappings were included in the relevant market because in every one of its uses, cellophane had to meet competition from some, but not all, of those other wrappings. For example, as shown in this Court's Appendix A to the *Cellophane* opinion, 351 U.S. at 405, 407-10, as a fresh produce wrapping, cellophane was interchangeable primarily with papers and films but not foil or glassine. As a snack wrapping cellophane was interchangeable primarily with glassine and papers but not foil or films.

The facts of the present case are thus strikingly similar to those of the *Cellophane* case. As shown below, the undisputed documentary evidence in this case, contained in the Hospital Disease and Therapeutic Index ("HDTI"), shows that for every one of their uses, cephalosporins compete with at least one and usually a number of other antibiotics or families of antibiotics.

The HDTI is a nationwide study of the prescribing practices of hospital-based physicians which describes their actual selection of antibiotics in over seven million uses with hospitalized patients over a six month period.* Tables I, II and III, annexed as Appendix A to this petition, contain a distillation of the relevant data set forth in the HDTI.

The HDTI shows that *in actual practice,* for virtually every purpose for which hospital physicians use cephalo-

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* The HDTI is not a study prepared for litigation. It is a periodic report prepared for the pharmaceutical industry by an independent market research organization. The HDTI introduced into evidence in this case covered a six month period relevant to the time period involved in this action and is set forth in full at JA 1094.

In addition, the discussion of the HDTI is equally applicable to the NDTI—the National Disease and Therapeutic Index (set forth at JA 1080 and described at JA 699-JA 711)—which reports the actual practices of *office* based physicians treating hospitalized patients and which confirms the HDTI by showing the actual interchangeability of use between cephalosporins and other antibiotics for treating infections.

sporins they also use other antibiotics, and that for virtually all purposes, cephalosporins are not even the principal antibiotic used.

For example, as summarized in Table I of Appendix A to this petition, there were over two million uses of antibiotics to treat respiratory diseases during the period covered by the HDTI. Cephalosporins accounted for only 213,000 of those uses, while penicillins accounted for 1,223,000 uses and other antibiotics accounted for 730,000 uses.

Similarly, as shown in Table II, there were 613,000 uses of antibiotics to treat infections caused by Escherichia Coli, by far the most common pathogen to be treated with antibiotics. Cephalosporins accounted for only 114,000 of those uses, while penicillins accounted for 234,000 uses, sulfa drugs accounted for 93,000 uses, and other antibiotics such as tetracyclines accounted for 127,000 uses.*

Neither SmithKline nor the courts below challenged the accuracy or veracity of the HDTI and NDTI. Rather, the District Court and the Third Circuit avoided the clear showing of interchangeability in the HDTI and NDTI only because they applied a standard of equal interchangeability, notwithstanding the rejection of that standard by this Court. Thus, the District Court stated:

> "Generally, on an overall basis, the cephalosporins are probably more effective for more conditions than penicillin or other antibiotics. Thus, there is interchangeability for the treatment of some illnesses but for other illnesses there is no *equal interchangeability.*" (Footnote omitted; emphasis added) (86a.)

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* In addition to the HDTI and NDTI, the record is replete with uncontroverted expert medical testimony, professional literature, independent market research publications, promotional literature from major pharmaceutical manufacturers and SmithKline's own internal marketing documents, all of which show that for every one of their uses cephalosporins compete with other antibiotics.

Further examination of the District Court's findings, which were relied upon as dispositive by the Third Circuit, demonstrates beyond question that the District Court was applying a standard of equal interchangeability.

For example, the District Court found (FF 36 at 44a-45a), and the Third Circuit agreed (20a), that cephalosporins and penicillins are not interchangeable in treating Klebsiella infections because penicillins are of limited efficacy in combating Klebsiella, and erroneously concluded that cephalosporins and penicillins are not includible in the same relevant market. However, the District Court erred in failing to consider the HDTI evidence showing that for Klebsiella infections, cephalosporins and antibiotics *other than* penicillins, such as Garamycin, are in fact used interchangeably (*e.g.,* JA 1094, p. 48; Table II at 2a), and that for types of infections other than Klebsiella, such as Proteus Mirabilis and Staphylococus Aureus, cephalosporins and penicillins *are* in fact used interchangeably. (*E.g.,* Table II at 2a.)

Similarly, the Third Circuit approved the District Court's finding (FF 36 at 44a-45a) that cephalosporins are "active against *both* staphylococci and gram negative bacilli," whereas no single pencillin can be relied on against both. But as shown in the HDTI and summarized in Table II in Appendix A to this petition (2a), cephalosporins represent only 25% of hospital uses against all staphylococcus infections, and only 19% of uses against Escherichia Coli, a Gram-negative pathogen which by itself accounts for 50% of all antibiotic uses against identified pathogens. Again, the HDTI shows conclusively that cephalosporins are interchangeable and compete with other antibiotics in treating those indications.

The District Court also stated that "cephalosporins are far less toxic than the aminoglycosides." (FF 36 at 44a-45a.) However, the HDTI shows that two aminoglycosides alone, Garamycin and Kantrex, accounted for 824,000 uses

during the relevant period. (JA 1094, pp. 48, 49.) And, as shown below, usages of Garamycin tripled in the period 1970 to 1974, with usage expanding at a faster rate than with cephalosporins.

But of all the errors made by the District Court and embraced by the Third Circuit in their relentless efforts to distinguish cephalosporins from other antibiotics, the most misleading was their limitation of price comparisons to a comparison between all cephalosporins and *one* penicillin—Penicillin G, which accounted for only 17 percent of total penicillin uses in 1974 and only 8 percent of all antibiotic uses in hospitals in the United States in the six months ending in February, 1974. (HDTI, JA 1094, pp. 1, 54, 76, 121, 123, 136, 142.)

Specifically, the District Court found that "during the period from 1966 through 1974, hospital purchases of cephalosporins increased nearly 700 percent", while "in the same period hospital purchases of Penicillin G decreased by nearly 60 percent". (FF 46 at 48a.) This is true. However, the very same chart (a copy of which is annexed as Appendix B to this petition at 4a) which the District Court relied upon for its finding also shows that ampicillin* uses increased over *1,300 percent* during the same period of time, that uses of gentamycin (Garamycin) and carbenicillins** each more than tripled in a shorter period of time, from 1970 to 1974, and that clindamycin (Cleocin) nearly doubled in use in one year, 1973 to 1974. Even a glance at that table shows that in focusing on Penicillin G the District Court erred by selecting the one antibiotic shown whose uses were substantially declining while ignoring all the other antibiotics indisputably used interchangeably with cephalosporins.

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* Ampicillin is one of the penicillins. (*E.g.*, HDTI, JA 1094 at pp. 54-58.)

** Carbenicillins are also penicillins. (*E.g.*, HDTI, JA 1094 at pp. 54, 117.)

In short, the District Court looked at each use of cephalosporins, found that for each use, *some* other antibiotic was not interchangeable and did not compete with cephalosporins, and failed to consider that for the same use several *other* antibiotics *were in fact* interchangeable and competed with cephalosporins. In so doing, the District Court applied a test of equal interchangeability of use, for only by doing so was it able to avoid dealing with the undisputed evidence of actual interchangeability established as a matter of law by the HDTI and NDTI.

The Third Circuit, in adopting the District Court's findings and conclusions, even though based on an erroneous legal standard, chose not to address the questions raised by the evidence of actual interchangeability of use represented by the HDTI, preferring instead to dismiss the HDTI with the following observation:

> "It scarcely need be commented that [the HDTI] was *evidence* presented at the trial, not a *fact* found by the fact finder." (20a; emphasis in original.)

Scarce indeed were the comments of the Third Circuit, and thus the District Court's application of a legal standard directly contrary to the standard enunciated by this Court in *Cellophane,* and its clearly erroneous findings of fact, were permitted to stand.

Thus, in defining the relevant market to include only cephalosporins, the courts below misapplied the standards set by this Court for determining relevant market by giving controlling emphasis to the concept of price sensitivity and by employing a standard of equal interchangeability notwithstanding the decisions of this Court. This Court should therefore grant the writ of certiorari to review the judgment of the Third Circuit in order to clarify and reaffirm the standard for determining relevant market.

Conclusion

For the foregoing reasons, a writ of certiorari should issue to review the judgment and opinion of the Third Circuit.

Dated: June 30, 1978

Respectfully submitted,

EDWARD N. SHERRY
Attorney for Petitioner
Eli Lilly and Company
140 Broadway
New York, New York 10005

Of Counsel:

JACK KAUFMANN
J. JAY RAKOW
Dewey, Ballantine, Bushby, Palmer & Wood

JOHN G. HARKINS, JR.
Pepper, Hamilton & Scheetz

APPENDIX

Appendix A.

TABLE I*

Physician Selection of Anti-Infectives by Diagnosis

Diagnosis	*Anti-Infective Selected (000)*								
	Other B&M[1]	*Pen.*[2]	*Strepto-mycin*	*Sulfas*	*Urin.*[3]	*Other A/B*[4]	*Ceph-alospo-rins*	*Total*	*Ceph. % of Total*
Genitourinary Disorders	465	729	8	309	143	7	289	1950	15%
Diseases of the Respiratory System ...	730	1223	9	—	—	—	213	2075	15%
Digestive Disorders	241	172	7	—	—	12	181	794	23%
Accidents and Poisoning	112	189	3	10	—	4	157	475	33%
Diseases of the Skin or Cellular Tissue	273	417	6	—	—	17	123	836	15%
Neoplasms	77	—	4	8	—	15	81	185	44%
Circulatory Disorders ...	46	116	—	17	—	2	76	257	30%
Infective or Parasitic Disease	162	307	10	—	—	—	43	522	8%

[1] Broad and Medium Spectrum Antibiotics, except for cephalosporins. Includes, among others, tetracyclines, erythromycins, chloramphenicol, cleocin, cleocin phosphate, kantrex, lincocin.

[2] Penicillins. Includes, among others, penicillin G, ampicillins and derivatives, anti-staph penicillins, carbenicillin, geocillin, geopen.

[3] Urinary Antibacterials.

[4] Other Antibiotics. Includes, among others, bacitracin, neomycin and garamycin.

* This and the following two tables contain a distillation of certain data set forth in the HDTI (JA 1094).

Appendix A.

TABLE II

PHYSICIAN SELECTION OF ANTI-INFECTIVES BY PATHOGEN

Pathogen	*Anti-Infective Selected (000)*								
	*Other B&M**	*Pen.**	*Strepto-mycin*	*Sulfas*	*Urin.**	*Other A/B**	*Ceph-alospo-rins*	*Total*	*Ceph. % of Total*
Escherichia Coli	127	234	—	93	42	3	114	613	19%
Klebsiella-Unspecified ...	39	17	—	—	4	—	47	107	44%
No-Growth	34	44	3	—	6	1	26	114	23%
Staphylococcus Aureus ..	17	66	—	—	—	—	22	105	21%
Staphylococcus Aureus Coagulase Positive	23	29	—	—	—	—	19	71	27%
Proteus Mirabilis	—	24	—	7	3	—	17	51	33%
Proteus Unspecified	16	22	—	4	2	—	14	58	24%
Staphylococcus Aureus Coagulas Positive	15	—	—	—	—	1	10	26	39%
Pseudomonas Aeruginosa	34	14	—	1	2	1	7	59	12%
Escherichia Coli & Klebsiella-Unspecified	18	4	—	—	—	—	7	29	24%

* See definitions in Table I.

Appendix A.

TABLE III

PHYSICIAN USE OF ANTI-INFECTIVES WITHOUT A CULTURE TEST* (000)

	Total Estimated Uses	*Used Without Culture Test*	*% of Uses Without Culture Test*
Total	7478	4594	61%
Other B&M**	2070	1217	59%
Cephalosporins	1153	668	58%
Pen.**	3597	2344	65%
Streptomycins	64	44	69%
Sulfas	358	208	58%
Urin.**	149	54	36%
Other A/B**	87	59	68%

* The term "culture test" refers to a procedure through which infecting organisms are identified. (JA 1066 at pp. 118-19.)

** See definitions in Table I.

Appendix B,
Trend in Purchases of Selected Antibiotic Entities.*

Measured in Grams (000's)

	1975	1974	1973	1970	1966
Ampicillins Injectable	NR	19,492.6	12,421.3	12,535.2	1,382.0
Penicillin G Injectable	NR	57,299,940	102,537,150	195,594,220	166,526,778
Tetracyclines Injectable	NR	348.5	306.9	608.7	623.0
Gentamicin Injectable	NR	806.1	687.3	226.1	—
Cephalosporins Injectable	NR	32,844.1	30,324.6	23,460.1	4,511.5
Carbenicillins Injectable	NR	7,045.4	7,896.3	2,114.7	—
Clindamycin Injectable	614.8	2,016.0	1,201.6	—	—

All data measured in thousands of grams with exception of Penicillin G's which are thousands of MU's.

NR—Not Required.

* This table is Table III to Exhibit P-170 of the record.

Appendix C,
Opinion and Judgment of the Court of Appeals
(Filed April 3, 1978).

UNITED STATES COURT OF APPEALS

FOR THE THIRD CIRCUIT

No. 77-1232

SmithKline Corporation

v.

Eli Lilly and Company,

Appellant

Appeal from the United States District Court
for the Eastern District of Pennsylvania
(D. C. Civil Action No. 75-1102)

Argued February 21, 1978
Before: ALDISERT, VAN DUSEN and WEIS, *Circuit Judges.*

Pepper, Hamilton & Scheetz
2001 The Fidelity Building
Philadelphia, Pennsylvania 19109

Dewey, Ballantine, Bushby, Palmer & Wood
140 Broadway
New York, New York 10005

Appendix C.

Of Counsel:

John G. Harkins, Jr., Esq.
Edward N. Sherry, Esq.
Jack Kaufmann, Esq.
John F. Collins, Esq.

COUNSEL FOR APPELLANT

Frederic L. Ballard, Esq.
William S. Rawls, Esq.
Lewis A. Grafman, Esq.

Of Counsel:

Ballard, Spahr, Andrews & Ingersoll
30 South 17th Street
Philadelphia, Pennsylvania 19103

John L. Boyle, Esq.
Richard L. Sherman, Esq.
1530 Spring Garden Street
Philadelphia, Pennsylvania 19130

COUNSEL FOR APPELLEE

ALDISERT, *Circuit Judge.*

The major question for decision is whether the district court in a non-jury trial erred in defining the relevant product market in a proceeding brought by SmithKline Corporation against Eli Lilly and Company under § 2 of the Sherman Act, which proscribes monopolies and attempts to monopolize. The court determined that the relevant product market is the nonprofit hospital market for a class of antibiotic drugs known as cephalosporins and that the relevant geographic market is the United States. Having so defined the relevant market, the court concluded that Lilly had illegally monopolized it. A permanent injunction against Lilly's illegal marketing practices was issued. Lilly has appealed, taking issue with the court on its market formulation; it would expand the relevant product market to include all anti-infective drugs prescribed by physicians. We affirm.[1]

Appendix C.

[1] At the outset, SmithKline asserted claims for damages and injunctive relief, alleging that Lilly's marketing practices constituted: (a) a tying arrangement in violation of §§ 1 and 3 of the Sherman Act, 15 U.S.C. §§ 1, 3, and § 3 of the Clayton Act, 15 U.S.C. § 14; (b) monopolization in violation of § 2 of the Sherman Act, 15 U.S.C. § 2; and (c) abuse and misuse of Lilly's patents in violation of §§ 1, 2 and 3 of the Sherman Act, 15 U.S.C. §§ 1, 2, 3.

Following a non-jury trial the district court, in a meticulous and comprehensive treatment of the relevant facts and law by Judge Higginbotham, determined that liability exists only on the monopolization claim. 427 F. Supp. 1089 (E.D. Pa. 1976). Pursuant to § 16 of the Clayton Act, 15 U.S.C. § 26, the district court entered a permanent injunction against those marketing practices of Lilly found to violate § 2 of the Sherman Act. A separate trial on the issue of damages has been stayed pending disposition of this appeal.

15 U.S.C. § 1, as amended, provides:

> Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal. Every person who shall make any contract or engage in any combination or conspiracy declared by sections 1 to 7 of this title to be illegal shall be deemed guilty of a felony, and, on conviction thereof, shall be punished by fine not exceeding one million dollars if a corporation, or, if any other person, one hundred thousand dollars or by imprisonment not exceeding three years, or by both said punishments, in the discretion of the court.

15 U.S.C. § 2, as amended, provides:

> Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a felony, and, on conviction thereof, shall be punished by

(footnote continued on following page)

Appendix C.

I.

The parties to this lawsuit are major manufacturers of human ethical pharmaceutical products which they sell in interstate and foreign commerce. Both manufacture antibiotic or anti-infective drugs; these are substances produced by micro-organisms that are active against other micro-organisms. Used by physicians to treat bacterial infections, antibiotics include, *e.g.*, ampicillins, carbeni-

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(footnote continued from preceding page)

fine not exceeding one million dollars if a corporation, or, if any other person, one hundred thousand dollars or by imprisonment not exceeding three years, or by both said punishments, in the discretion of the court.

15 U.S.C. § 3, as amended, provides:

Every contract, combination in form of trust or otherwise, or conspiracy, in restraint of trade or commerce in any Territory of the United States or of the District of Columbia, or in restraint of trade or commerce between any such Territory and another, or between any such Territory or Territories and any State or States or the District of Columbia, or with foreign nations, or between the District of Columbia and any State or States or foreign nations, is declared illegal. Every person who shall make any such contract or engage in any such combination or conspiracy, shall be deemed guilty of a felony, and, on conviction thereof, shall be punished by fine not exceeding one million dollars if a corporation, or, if any other person, one hundred thousand dollars or by imprisonment not exceeding three years, or by both said punishments, in the discretion of the court.

15 U.S.C. § 14 provides:

It shall be unlawful for any person engaged in commerce, in the course of such commerce, to lease or make a sale or contract for sale of goods, wares, merchandise, machinery, supplies, or other commodities, whether patented or unpatented, for use, consumption, or resale within the United States or any Territory thereof or the District of Columbia or any insular possession or other place under the jurisdiction

(footnote continued on following page)

Appendix C.

cillins, gentamycins, penicillins, tetracyclines, and nitrofurantoins. The companies also manufacture other bacteria inhibiting drugs, such as sulfas, which are not denominated antibiotics because they are composed of chemicals not produced by living organisms. Antibiotics are available in parenteral (administered by intravenous or intramuscular injection) and oral forms.

In 1964 Lilly introduced the first cephalosporin antibiotic, Keflin (cephalothin), into the United States market. It has subsequently introduced four additional cephalosporin forms: Keflex (cephalexin), Loridine (cephaloridine), Kafocin (cephaloglycin), and Kefzol (cefazolin). Lilly has United States patents on all its cephalosporin antibiotics except cefazolin. It is Lilly's marketing practices for cefazolin that bring this case before us.

(footnote continued from preceding page)

of the United States, or fix a price charged therefor, or discount from, or rebate upon, such price, on the condition, agreement, or understanding that the lessee or purchaser thereof shall not use or deal in the goods, wares, merchandise, machinery, supplies, or other commodities of a competitor or competitors of the lessor or seller, where the effect of such lease, sale, or contract for sale or such condition, agreement, or understanding may be to substantially lessen competition or tend to create a monopoly in any line of commerce.

15 U.S.C. § 26, as amended, provides:

Any person, firm, corporation, or association shall be entitled to sue for and have injunctive relief, in any court of the United States having jurisdiction over the parties, against threatened loss or damage by a violation of the antitrust laws, including sections 13, 14, 18, and 19 of this title, when and under the same conditions and principles as injunctive relief against threatened conduct that will cause loss or damage is granted by courts of equity, under the rules governing such proceedings, and upon the execution of proper bond against damages for an injunction improvidently granted and a showing that the danger of irreparable loss or damage is immediate, a preliminary injunction may issue. . . .

Appendix C.

From 1964 until 1973, a period during which cephalosporins gained wide acceptance in the medical field, Lilly enjoyed a complete and legal monopoly by virtue of its patents. Beginning in 1973, however, competition emerged as other manufacturers began to market new varieties of cephalosporin drugs. The first such competitor was plaintiff-appellee SmithKline, who entered the competition with cefazolin, which it marketed under the trade name Ancef. SmithKline's Ancef is identical to the cefazolin introduced shortly thereafter by Lilly under the trade name Kefzol. SmithKline and Lilly, the only producers of cefazolin in the United States, hold non-exclusive United States licenses granted by the Japanese developer of the formula.

The following chart lists the various cephalosporins now on the market:

CEPHALOSPORINS

INJECTABLE

Generic Name	*Brand Name*	
Cephalothin (1964)	Keflin (Lilly)	
Cephaloridine (1967)	Loridine (Lilly)	
Cefazolin (1973)	Kefzol (Lilly) Ancef (SmithKline)	(generic equivalents)
Cephapirin (1974)	Cefadyl (Bristol)	
Cephradine (1974)	Velosef (Squibb)	

ORAL

Cephalexin (1972)[2]	Keflex (Lilly)	
Cephaloglycin (1971)	Kafocin (Lilly)	
Cephradine (1974)	Anspor (SmithKline) Velosef (Squibb)	(generic equivalents)

[2] Although not affecting the disposition of this case, the record of the district court contains an inconsistency and so it is unclear whether Keflex and Kafocin were first marketed, respectively, in 1972 and 1971, or 1971 and 1970.

Appendix C.

SmithKline's entry into the cephalosporin market was preceded by a five-year research and market development program during which more than $20,000,000 was expended. Some 500 sales representatives visited physicians to explain Ancef's characteristics and effectivness as an antibiotic, particularly its superiority over Keflin for intramuscular, as opposed to intravenous, injection. Both companies introduced price-related marketing plans, Lilly to combat competition, and SmithKline to break into the cephalosporin market.

Prior to encountering competition, Lilly had adopted a marketing program known as the Cephalosporin Savings Plan (CSP), designed to make its cephalosporins more competitive with other antibiotics and to expand its sales. The CSP provided that a rebate in the form of Lilly merchandise would be paid to hospitals based on the total amount of Lilly cephalosporin purchased. As competition increased, Lilly instituted a Revised CSP effective in April 1975. The monopolistic effects of this revised plan constitute the gravamen of the present dispute. The Revised CSP provides for a rebate in much the same form, but at lower rates than the original CSP. In addition, however, the Revised CSP provides for an additional three percent (3%) bonus rebate, based on the purchases of established minimum quantities of any three of Lilly's five cephalosporins.

At the same time, SmithKline had a rebate program of its own, the Price Insurance Plan (PIP), allowing a five percent (5%) rebate, paid in the form of SmithKline merchandise, on hospital purchases of Ancef; additional rebates were available for certain volume purchases of Ancef and Anspor, SmithKline's other cephalosporin.

Appendix C.

The comparative market positions of the cephalosporins are illustrated by the district court findings:

	1970		1971		1972	
	Volume	*Share*	*Volume*	*Share*	*Volume*	*Share*
*Total Cephalosporins***	$ 67,325	100.0%	$ 81,239	100.0%	$98,520	100.0%
Lilly	67,325	100.0	81,239	100.0	98,520	100.0
Keflin (9/64)	40,693	60.4	51,062	62.9	62,796	63.7
Keflex (2/71)	.....	....	11,239	13.8	20,752	21.1
Kefzol (11/73)	.....	....	.....	....	.....	....
Keflin Neutral (5/75)	.....	....	.....	....	.....	....
Loridine (3/68)	25,622	38.1	17,916	22.1	14,607	14.8
Kafocin (7/70)	994	1.5	1,016	1.3	356	0.4
Cephaloridine (9/68)	16	....	6	....	9	....
Bristol						
Cefadyl (5/74)	.....	....	.....	....	.....	....
SmithKline	.....	....	.....	....	.....	....
Ancef (10/73)	.....	....	.....	....	.....	....
Anspor (10/74)	.....	....	.....	....	.....	....
Squibb						
Velosef (8/74)	.....	....	.....	....	.....	....

	1973		1974		1975*	
	Volume	*Share*	*Volume*	*Share*	*Volume*	*Share*
*Total Cephalosporins***	$105,405	100.0%	$123,771	100.0%	$65,007	100.0%
Lilly	103,858	98.5	111,177	89.8	57,611	88.6
Keflin (9/64)	68,233	64.7	67,854	54.8	30,630	47.1
Keflex (2/71)	22,945	21.8	25,346	20.4	13,834	21.3
Kefzol (11/73)	1,149	1.4	13,593	11.0	8,355	12.9
Keflin Neutral (5/75)	.....	....	.....	....	3,340	5.1
Loridine (3/68)	10,996	10.4	4,322	3.5	1,430	2.2
Kafocin (7/70)	191	0.2	61	0.1	21	....
Cephaloridine (9/68)	14	....	1	....	1	....
Bristol						
Cefadyl (5/74)	.....	....	1,865	1.5	1,766	2.7
SmithKline	1,547	1.5	10,425	8.5	5,292	8.1
Ancef (10/73)	1,547	1.5	10,355	8.4	4,988	7.7
Anspor (10/74)	.....	....	70	0.1	304	0.5
Squibb						
Velosef (8/74)	.....	....	304	0.3	338	0.5

* 6 Months data.
** Dates in parentheses are dates of introduction.

Appendix C.

It can readily be seen that Lilly's Keflin, usually administered in intravenous form, and Keflex, an oral drug, have dominated the cephalosporin market. As Lilly's other cephalosporins, Loridine and Kafocin, have diminished in competitive importance, Kefzol has risen to a position as Lilly's third-ranking cephalosporin, and it is clear that Lilly and SmithKline were in direct competition with their generically equivalent Kefzol and Ancef. Another competitive factor appreciated by the two companies is that the cefazolin formula is a therapeutic equivalent of the market leader Keflin, yet is more suitable for administration by intramuscular or intravenous injection—the former being a simpler and apparently less expensive procedure—and offers more sustained and higher blood levels. Thus, the Kefzol-Ancef formula offers similar therapeutic features at a lower cost per patient than Keflin, and is therefore a potentially strong competitor of that drug. An examination of the sales figures, *supra,* reveals that the cefazolin formula—Kefzol more so than Ancef—has gained popularity at some expense to Keflin's market share.

The economic significance for Lilly is great: the district court found that profits on the patented Keflin are far higher than on Kefzol, for which Lilly holds a non-exclusive license and in the pricing of which it must consider the existence of a competitor, SmithKline. To the extent that the cefazolin formula is accepted as a substitute for the cephalothin formula (Keflin), Lilly faces the loss of its monopolistic profits. Thus, in addition to the normal economic incentive to preempt a market, an additional incentive for Lilly to control the cefazolin market is present on these facts: Lilly would stand to preserve the market position of Keflin by discouraging widespread acceptance in the medical field of Kefzol or Ancef as a substitute drug.

It was the theory of SmithKline, and accepted by the district court, that to further its economic ends, Lilly instituted the Revised CSP, the linchpin of which was the well established hospital market for its patented drugs, Keflin and Keflex. The district court determined that the effect of the Revised CSP was to combine—for purposes of pricing—hospital purchases of Keflex and Keflin with those of Kefzol. An examination of the working of the Revised CSP makes this conclusion inescapable. Although eligibility for the 3% bonus rebate was based on the purchase of specified quantities of any three of Lilly's cephalosporins, in reality it meant the combined purchases of Kefzol and the leading sellers, Keflin and Keflex. In 1974 these two market leaders accounted for 75% of all hospital cephalosporin purchases. Although hospitals were free to purchase SmithKline's Ancef with their Keflin and Keflex orders with Lilly, thus avoiding the penalties of a tie-in sale,[3] the practical effect of that decision would be to

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[3] The district court found, and it is not disputed, that Lilly did not condition the availability of any of its products on the purchase of any other of its products or on the refusal of purchasing hospitals to deal with its competitors. Thus, Lilly did not "tie" purchases of Kefzol to purchases of Keflin or Keflex. We accept the decision of the district court that, in the absence of such a requirement, there is no illegal tie-in. Although sufficient to establish the offense of monopolization under § 2 of the Sherman Act, 15 U.S.C. § 2, Lilly's marketing scheme lacks the element of coercion necessary for liability under the theory of tie-ins. As stated by this court in *Ungar* v. *Dunkin' Donuts of America, Inc.*, 531 F.2d 1211 (3d Cir. 1976), *cert. denied* 429 U.S. 823 (1976):

> To prove a per se illegal tie-in, a plaintiff must establish three things. First, he must establish that the conduct in question was a tie-in: "an agreement by a party to sell one product but only on the condition that the buyer also purchases a different (or tied) product." *Northern Pacific Ry.* v. *United States, supra,* 356 U.S. at 5, 78 S.Ct. at 518, 2 L.Ed.2d at 550. Second, he must establish that the seller

(footnote continued on following page)

deny the Ancef purchaser the 3% bonus rebate on all its cephalosporin purchases.

In understanding the effects of Lilly's Revised CSP, the importance of cephalosporins in hospital pharmacies cannot be understated. They are carried in stock by virtually every general hospital in the country. To meet the bonus discounts offered by Lilly, a competitor was forced to more than meet the competition on the one product, cefazolin; it had to match the bonus rebate awarded to the hospital purchaser based on *total* purchases of three cephalosporins, including the leading sellers, Keflin and Keflex. In SmithKline's case, this meant it had to compete "three-on-one". (Brief for Appellee at 36.) In computing its percentage of rebate on the one product, Ancef, SmithKline was forced to meet the total dollar discounts available to purchasers of Lilly's three high volume cephalosporins. Although the Revised CSP only gave a 3% bonus rebate, because of Lilly's volume advantage, in order to offer a rebate of the same net dollar amount as Lilly's, SmithKline had to offer purchasers of Ancef rebates of some 16% to hospitals of average size, and 35% to larger volume hospitals.

(footnote continued from preceding page)

> "has sufficient economic power with respect to the tying product to appreciably restrain free competition in the market for the tied product." *Ibid.* at 6. And third, he must establish that "a 'not insubstantial' amount of interstate commerce is affected." *Ibid.*
>
> Obviously, with respect to the first element, a formal agreement is not necessary, although it is sufficient. But, in the absence of a formal agreement, a plaintiff must establish in some other way that a tie-in was involved and not merely the sale of two products by a single seller. This can be done by proof that purchase of one product, the tied product, was not voluntary, i.e., by proof of coercion.

531 F.2d at 1223-24 (footnote omitted).

Appendix C.

II.

"The offense of monopoly under § 2 of the Sherman Act has two elements: (1) the possession of monopoly power in the relevant market and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident." *United States* v. *Grinnell Corp.*, 384 U.S. 563, 570-71 (1966).

Appellant does not contest the finding that the United States is the relevant geograghic market. The parties' dispute centers instead around what products should be included, SmithKline contending that the relevant market should include only cephalosporin antibiotics and Lilly arguing that it should include all antibiotics. The trial court found that cephalosporins, as a group, are therapeutically interchangeable with other antibiotics only to a limited extent; that they lack price sensitivity and cross-elasticity with other antibiotics; and that a special demand exists for them.

To the extent that the court's findings are based on narrative or historical facts, they can only be disturbed on appeal if they are found to be clearly erroneous. *Rochez Brothers, Inc.* v. *Rhoades,* 527 F.2d 880, 887 (3d Cir. 1975), *citing Krasnov* v. *Dinan,* 465 F.2d 1298, 1302-03 (3d Cir. 1972). Moreover, the Supreme Court teaches that whether a product is "reasonably interchangeable for the same purpose" is reviewed by the clearly erroneous test, *International Boxing Club* v. *United States,* 358 U.S. 242, 251 (1959), and that for an appellant to prevail "it must show that erroneous legal tests were applied to essential findings of fact or that the findings themselves were 'clearly erroneous' within our rulings on Rule 52(a) of the Rules of Civil Procedure", *United States* v. *E. I. duPont deNemours & Co.*, 351 U.S. 377, 381 (1956) (*The Cellophane Case*).

Appendix C.

III.

We first address the question whether the district court properly defined the relevant market.

A.

The Supreme Court offers this guidance in defining a relevant market: "The 'market' which one must study to determine when a producer has monopoly power will vary with the part of commerce under consideration. The tests are constant. That market is composed of products that have reasonable interchangeability for the purposes for which they are produced—price, use and qualities considered." *The Cellophane Case, supra,* 351 U.S. at 404.

These controlling legal precepts have been succinctly explained by Justice Fortas: "In § 2 cases, the search for 'the relevant market' must be undertaken and pursued with relentless clarity. It is, in essence, an economic task put to the uses of the law. . . . As this court held in *Brown Shoe* [v. *United States,* 370 U.S. 294 (1962)], the 'reasonable interchangeability of use or the cross-elasticity of demand,' determines the boundaries of a product market. 370 U.S., at 325. . . . In plain language, this means that the court should [define] the relevant market . . . to include all services which, in light of geographical availability, price and use characteristics, are in realistic rivalry for all or some part of the business [of antibiotics]. . . . [I]f defendant has so large a fraction of the market as to constitute a 'predominant' share, a rebuttable presumption of monopolization follows. The fraction depends upon the denominator (the 'market') as well as the numerator (the defendants' volume). Clearly, this 'presumption' is unwarranted unless the 'market' is defined to include all competitors." *United States* v. *Grinnell, supra,* 384 U.S. at 587, 592-94 (1966) (Fortas, J., dissenting on the application of these standards to the facts).

Appendix C.

If the search for the relevant market is "an economic task put to the uses of the law," our analysis perforce is directed to basic economic precepts. Elasticity of demand for a product has been defined as the degree by which the amount of a product purchased will change in response to changes in its price. If products are substituted one for another, they will display positive cross-elasticity. Thus, a decrease in the price of one of two substitutes, while the other stays constant, will result in a decrease of sales of the constant price product. Similarly, an increase in the price of one while the other stays constant will result in an increase of sales of the constant price product. The greater the positive cross-elasticity of demand between two products is, the closer substitutes they are. *See* L. SULLIVAN, HORNBOOK OF THE LAW OF ANTITRUST 53-54 (West 1977).

In sum, defining a relevant product market is a process of describing those groups of producers which, because of the similarity of their products, have the ability—actual or potential—to take significant amounts of business away from each other. A market definition must look at all relevant sources of supply, either actual rivals or eager potential entrants to the market. A market definition must provide the numerator and the denominator in the fraction labeled "market share". *See* M. HANDLER, H. BLAKE, R. PITOFSKY, H. GOLDSCHMID, CASES AND MATERIALS ON TRADE REGULATION 284-86 (Foundation Press 1975).

B.

The district court made findings as to price and cost of cephalosporins. It noted that, although competition between SmithKline and Lilly resulted in lowering the cost of cefazolin (Ancef and Kefzol) to hospitals, there has been no comparable reduction—or any erosion at all—in the price of Keflin. Prescribing physicians are not cost-

Appendix C.

conscious in their choices of an antibiotic for a hospitalized patent, and so do not opt for a less expensive over a more costly medication. The district court observed that it was estimated by Lilly that even a 50% reduction in the price of Keflin would not greatly increase Keflin's sales. Compared to other antibiotics in terms of cost per patient for a daily dosage, cephalosporins are very expensive; for example, injectable cephalosporins cost several times as much as injectable penicillin G, a widely used antibiotic which is often compared to the cephalosporins. Nevertheless, changes in the relative amounts of the cephalosporins and non-cephalosporins purchased by hospitals are not directly related to the relative costs thereof. During the period from 1966 through 1974, while hospital purchases of cephalosporins increased by nearly 700%, hospital purchases of penicillin G decreased by nearly 60%. The district court noted that only the appearance of a new generation of anti-infectives to challenge the position of Keflin would effect a price reduction on that drug. Although such a challenge might have been forthcoming from the Ancef-Kefzol formula, the effect of Lilly's Revised CSP was to stifle that competition.

On the basis of the foregoing, we must conclude that the cephalosporins and non-cephalosporin anti-infectives do not demonstrate significant positive cross-elasticity of demand insofar as price is concerned. We therefore will not disturb the district court's conclusion that there is a lack of price sensitivity between cephalosporins and other antibiotics.

Regarding the interchangeability of cephalosporins and other anti-infective drugs, the district court found that, although there is a certain degree of interchangeability among all antibiotics, there are significant differences between the groups in the areas of effectiveness and toxicity. Cephalosporins are considered more desirable by some

physicians because they are broad spectrum anti-infectives, that is they are effective against a wider range of infectious organisms than are other antibiotics. In addition, cephalosporins are generally used in treating penicillin-allergic patients. Particularly significant in terms of practical interchangeability is the fact that cephalosporins are effective against certain organisms where other anti-infectives are not, and vice versa.

The district court noted, for example, that cephalosporins are less toxic, *i.e.,* produce fewer undesirable side effects, than some other anti-infectives. In addition, unlike penicillins, cephalosporins are effective against the organism Klebsiella; they are also active against both staphylococci and gram negative bacilli, whereas penicillins tend to be active against one but not the other. These features can obviously be of great significance in the determination of the proper medication for a given patient. Thus, although there is a certain overlap in therapeutic capability, in the view of the district court, cephalosporins possess sufficiently unique features to warrant their characterization as a discrete product market, one lacking interchangeability with antibiotics in general.

By brief and at oral argument, Lilly placed great emphasis on a Hospital Disease Therapeutic Index (HDTI), a nationwide study of hospital-based physicians, describing actual use of antibiotics in treating hospitalized patients. This study purported to confirm that for virtually every purpose for which hospital physicians use cephalosporins, they also use other antibiotics. It scarcely need be commented that this was *evidence* presented at the trial, not a *fact* found by the factfinder. We do not conduct *de novo* fact findings on appeal, and will review evidence not with a view toward making our own findings but only to determine whether those of the district court are clearly erroneous, and we conclude that these are not.

The analysis of the district court comports with the standard for defining relevant market enunciated by the Supreme Court in *The Cellophane Case, supra,* and the elaboration of that standard offered by Justice Fortas in his *Grinnell* dissent, *supra.* Viewing this treatment against the standard of review mandated by the Supreme Court in *International Boxing Club, supra,* and *The Cellophane Case, supra,* we do not find the findings clearly erroneous.[4] Accordingly, we reject appellant Lilly's contention that the district court erred in its choice of application of the proper legal standards to test the market definition and that the material facts as found were clearly erroneous. We therefore conclude that the relevant product market, the market where there is true economic rivalry because of product similarity, is that composed of cephalosporin antibiotics; there is neither appropriate interchangeabiilty, price sensitivity, nor cross-elasticity of demand in the broader market of all antibiotics.

IV.

Having agreed with the court's definition of the relevant product market, we are now required to determine whether Lilly possessed monopoly power in that market, and if so, whether it was a willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident. *United States* v. *Grinnell Corp., supra.*

---

[4] As enunciated by this Court, findings are clearly erroneous only when they are found to be "completely devoid of minimum evidentiary support displaying some hue of credibility, or [bearing] no rational relationship to the supportive evidentiary data." *Krasnov* v. *Dinan, supra,* 465 F.2d at 1302. The district court's findings of fact with respect to the absence of price sensitivity between cephalosporins and other antibiotics, findings 38-48(a), bear a credible and rational relationship to the supporting evidence.

Appendix C.

The Supreme Court has defined monopoly power as "the power to control prices or exclude competition", *The Cellophane Case, supra,* 351 U.S. at 391. Between 1964 and 1974, Lilly controlled from 100% to 89.8% of the cephalosporin market, and notwithstanding that its position in the market was originally the result of its patents, this share is generally considered monopolistic. *See, e.g., United States* v. *Grinnell, supra,* (87% market share found to constitute monopoly). The district court's characterization of Lilly as a monopolist is further buttressed by its fair measure of success in insulating Kefzol from true price competition with Ancef by means of its Revised CSP. The evidence demonstrates that Lilly's competitors did not have the actual or potential ability to capture a significant share of Lilly's business. The district court noted that Lilly's entrenched position as a supplier of cephalosporin, as well as the high costs of research and market development, made competition from a new entrant to the market unlikely.

V.

In sum, the act of willful acquisition and maintenance of monopoly power was brought about by linking products on which Lilly faced no competition—Keflin and Keflex—with a competitive product, Kefzol. The result was to sell all three products on a non-competitive basis in what would have otherwise been a competitive market for Ancef and Kefzol. The effect of the Revised CSP was to force SmithKline to pay rebates on one product, Ancef, equal to rebates paid by Lilly based on volume sales of three products. On the basis of expert testimony, the court found SmithKline's prospects for continuing in the cephalosporin market under these conditions to be poor.

With Lilly's cephalosporins subject to no serious price competition from other sellers, with the barriers to entering the market substantial, and with the prospects of new competition extremely uncertain, we are confronted with a factual complex in which Lilly has the awesome power of a monopolist. Although it enjoyed the status of a legal monopolist when it was engaged in the manufacture and sale of its original patented products, that status changed when it instituted its Revised CSP. The goal of that plan was to associate Lilly's legal monopolistic practices with an illegal activity that directly affected the price, supply, and demand of Kefzol and Ancef. Were it not for the Lilly's Revised CSP, the price, supply, and demand of Kefzol and Ancef would have been determined by the economic laws of a competitive market. The Revised CSP blatantly revised those economic laws and made Lilly a transgressor under § 2 of the Sherman Act.

Appendix C.

The judgment of the district court will be affirmed.

To the Clerk:

Please file the foregoing opinion.

Appendix C.

UNITED STATES COURT OF APPEALS

FOR THE THIRD CIRCUIT

No. 77-1232

SmithKline Corporation

vs.

Eli Lilly and Company,

Appellant

(D. C. Civil No. 75-1102)

ON APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF PENNSYLVANIA

Present: ALDISERT, VAN DUSEN and WEIS, *Circuit Judges*

JUDGMENT

This cause came on to be heard on the record from the United States District Court for the Eastern District of Pennsylvania and was argued by counsel on February 21, 1978.

On consideration whereof, it is now here ordered and adjudged by this Court that the order of the said District Court, filed December 28, 1976 as amended by order filed December 29, 1976, be, and the same is hereby, affirmed, with costs taxed against appellant.

April 3, 1978
Certified as a true copy and issued in lieu of a formal mandate on April 25, 1978.
Test:
s/ M. ELIZABETH FERGUSON
Chief Deputy Clerk, U.S. Court of Appeals for the Third Circuit

ATTEST:
s/ THOMAS F. QUINN
Clerk
Costs taxed in favor of appellee as follows:
Brief $1,873.61

COPY

Appendix D,
Opinion and Order of the District Court.

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

SMITHKLINE CORPORATION : CIVIL ACTION
v. :
ELI LILLY AND COMPANY : No. 75-1102

OPINION

November 2, 1976

HIGGINBOTHAM, A. L., J.

FILED
Nov-2 1976
JOHN J. HARDING, Clerk
By A. M. N. Dep. Clerk

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Appendix D.

I. Introduction

The plaintiff, SmithKline Corporation ("SmithKline"), instituted this antitrust action against the defendant, Eli Lilly and Company ("Lilly"), for purported violations of sections one, two and three of the Sherman Act, as amended, 15 U.S.C. §§ 1,[1] 2,[2] and 3,[3] and for an alleged violation of

---

[1] 15 U.S.C. § 1 provides in relevant part:

> Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal . . .

[2] 15 U.S.C. § 2 states:

> Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding fifty thousand dollars, or by imprisonment not exceeding one year, or both said punishments, in the discretion of the court.

[3] 15 U.S.C. § 3 states:

> Every contract, combination in form of trust or otherwise, or conspiracy, in restraint of trade or commerce in any Territory of the United States or of the District of Columbia, or in restraint of trade or commerce between any such Territory and another, or between any such Territories and any State or States or the District of Columbia, or with foreign nations, or between the District of Columbia and any State or States or foreign nations, is hereby declared illegal. Every person who shall make any such contract or engage in any such combination or conspiracy, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding fifty thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

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section three of the Clayton Act, 15 U.S.C. § 14.[4] The plaintiff and defendant corporations are major manufacturers of prescription pharmaceuticals, engaged in both interstate and foreign commerce. This complaint was occasioned by the defendant's marketing practices in the sale of certain pharmaceutical products, cephalosporins.[5]

More specifically, plaintiff claims that a marketing scheme Lilly created in April, 1975, known as the Revised Cephalosporin Savings Plan ("Revised CSP"), violated the antitrust laws. Under the Revised CSP, participating hospitals were eligible for two rebates: (1) a rebate based

---

[4] 15 U.S.C. § 14 states:

> That it shall be unlawful for any person engaged in commerce in the course of such commerce, to lease or make a sale or contract for sale of goods, wares, merchandise, machinery, supplies, or other commodities, whether patented or unpatented, for use, consumption, or resale within the United States or any Territory thereof or the District of Columbia or any insular possession or other place under the jurisdiction of the United States, or fix a price charged therefore, or discount from, or rebate upon, such price, on the condition, agreement, or understanding that the lessee or purchaser thereof shall not use or deal in the goods, wares, merchandise, machinery, supplies, or other commodities of a competitor or competitors of the lessor or seller, where the effect of such lease, sale, or contract for sale or such condition, agreement, or understanding may be to substantially lessen competition or tend to create a monopoly in any line of commerce.

[5] Cephalosporins are:

> . . . semisynthetic antibacterial agents that are closely related chemically to the penicillins and, like them, contain a beta lactam ring as part of the nucleus. They are produced by the addition of substitutent groups to 7-aminocephalosporanic acid, a chemical nucleus obtained from cephalosporin C, which is elaborated by the fungus *Cephalosporium*. The cephalosporins interfere with the synthesis of the bacterial cell wall by inactivating a transpeptidase, thereby preventing cross-linkage of peptidoglycan chains. A.M.A. Drug Evaluations 523 (2d Ed. 1973).

on the total volume of a hospital's purchases of Lilly cephalosporins, the "base dividend";[6] and (2) a 3% rebate conditioned on the purchase of certain minimum quantities of each of any three of Lilly's five cephalosporin products, the "bonus rebate". The minimum quantity which had to be purchased in order to qualify for Lilly's bonus rebate was separately calculated for each hospital.

SmithKline brought this private antitrust action alleging that the Revised CSP is an unlawful tying device in violation of sections one and three of the Sherman Act and section three of the Clayton Act. Furthermore, the plaintiff contends: (1) that Lilly has monopoly power; and (2) that the Revised CSP is a device designed to unlawfully foreclose competition or exclude competitors from the United States nonprofit hospital market in cephalosporins and, thus, enables Lilly to commit the offense of monopolization in violation of section two of the Sherman Act. Finally, SmithKline avers that the Revised CSP is a technique for the abuse and misuse of certain Lilly cephalosporin patents, in abrogation of sections one, two and three of the Sherman Act.[7]

Plaintiff, on May 14, 1975, filed a motion for a preliminary injunction; pursuant to conferences with the Court and a stipulation by the parties it was determined that a hearing on a final injunction would be held promptly. [See Document Nos. 11, 12, 15 and 41.] After extensive discovery and numerous pre-trial conferences, a non-jury hearing on

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[6] In calculating the base dividend, if a hospital takes its rebates from the previous quarter in the form of Lilly cephalosporins, those drugs are added to cephalosporins purchased from Lilly in the subsequent quarter when Lilly determines the next base dividend. (Step, Dep. at 14).

[7] Sales to nonprofit hospitals are exempt from the Robinson-Patman Act under 15 U.S.C. § 13(c).

liability commenced on November 24, 1975 and ended on January 6, 1976. Counsel delivered their closing arguments on March 19, 1976. The pretrial conduct of this matter was a model of cooperation among counsel and, once again, was a reminder of the ease with which a complex case can be effectively presented without undue antagonism or histrionics among counsel.

Cephalosporins are extraordinary semisynthetic, antibacterial agents which on certain occasions can save the lives of the ill or reduce significantly extraordinary suffering. Neither plaintiff nor defendant disputes the significance of the pharmaceutical breakthrough caused by cephalosporins. Lilly persuaded the medical profession to purchase more than $519,730,000 of its cephalosporins from 1970 through the first quarter of 1975. [Finding of Fact ¶ 96.] At issue here is not solely the efficacy of the products, but also the appropriateness of Lilly's merchandising scheme—the Revised CSP. While claiming to better the medical condition of the seriously ill, has Lilly impermissibly sought to mortally wound SmithKline, so that it would no longer be the only viable competitor in the cephalosporin field? In the injury which it imposes on SmithKline by the Revised CSP, Lilly has clearly overstepped the boundaries of restraint required by the anti-trust laws.

After a most careful consideration of the detailed record and the parties' respective briefs and proposed findings of fact, I find, for the reasons noted below, that since April 1, 1975, the date of the institution of the Revised CSP, that Lilly has monopolized the nonprofit hospital market for cephalosporins, in violation of section two of the Sherman Act; consequently, the plaintiff is entitled to final injunctive relief. I further find that SmithKline has failed to prove that the Revised CSP constitutes an illegal tying arrangement and, thus, Lilly has violated neither sections one and three of the Sherman Act nor section three of the Clayton

Act. There is no need to separately consider SmithKline's averment of patent misuse.

This entire opinion, including the legal discussion, constitutes my Findings of Fact and Conclusions of Law, and any proposed findings of fact and conclusions of law inconsistent with those here found are hereby rejected in accordance with Rule 52 of the Federal Rules of Civil Procedure.

II

History Of The Cephalosporin Market

While the Findings of Fact note with greater specificity the issues and relevant data, the following history is a brief synopsis of the development of the cephalosporin industry and the relevant marketing practices of the parties. In 1964 cephalosporins first became available for use in United States hospitals when Lilly introduced cephalothin, under the Lilly brand name Keflin, into the United States market. Subsequently Lilly marketed three additional cephalosporins: cephalexin (Keflex),[8] cephaloridine (Loridine), and cephaloglycin (Kafocin), all of which, including Keflin, are covered by United States patents owned by Lilly under which it has exclusive rights.

Lilly was the sole United States supplier of cephalosporins until October, 1973 when SmithKline brought yet another cephalosporin, cefazolin (Ancef), into the drug

[8] The generic (chemical) name of the particular cephalosporin appears first, followed by the Lilly brand name in parentheses. The same method will be used in identifying both the generic and brand names of drugs manufactured and marketed by companies other than and including Lilly throughout this opinion, unless another method of identification is necessary for the sake of clarity. Generic equivalents are drugs with identical chemical structures which can be used interchangeably to treat the same condition in a patient.

market. SmithKline markets cefazolin under a non-exclusive license obtained from a United States patent owner, Fujisawa, a Japanese pharmaceutical company. In November, 1973 Lilly, also under a non-exclusive license, began marketing cefazolin under the brand name Kefzol. Later, Bristol and Squibb also began selling cephalosporins.[9] Cephalosporins are distributed by both parties

[9] In May, 1974 Bristol introduced cephapirin (Cefadyl); in August of that same year Squibb marketed cephradine (Velocef); and in October, 1974 SmithKline also sold cephradine under the brand name Anspor. Lilly's cephalosporin products were introduced on the following dates: Keflin—September, 1964; Loridine—March, 1968; Kafocin—July, 1970; Keflex—February, 1971; and Kefzol—November, 1973.

For the convenience of the reader, the following chart lists the various cephalosporins currently available in the United States by their chemical and brand names; the manufactures are also indicated. Those drugs which are chemical, i.e. generic, equivalents are noted below. The various cephalosporins are also segregated by the route of administration used by the physician. Some cephalosporins are injectible, administered either intraveneously and/or intramuscularly. Other cephalosporins are administered orally.

Generic Name	*Brand Name*
Injectible	
cephalothin	Keflin (Lilly)
cephaloridine	Loridine (Lilly)
cefazolin	**Kefzol (Lilly)
	**Ancef (SmithKline)
cephapirin	Cefadyl (Bristol)
cephradine	***Velocef (Squibb)
Oral	
cephalexin	Keflex (Lilly)
cephaloglycin	Kafocin (Lilly)
cephradine	***Anspor (SmithKline)
	***Velocef (Squibb)

**chemical (generic) equivalents
***chemical (generic) equivalents

through independent wholesalers, who, then, sell the products to the hospitals. Lilly and SmithKline promote their respective products through sales representatives ("detail men"), who consult with both physicians and pharmacists within the hospitals.[10] Cephalosporins are available for administration by a physician in a given hospital, in most instances, only if they are included within that hospital's formulary—a list of drugs approved and available for use in that institution. Drugs are listed on the formulary as a result of: (1) a recommendation that a drug be so included by a physician affiliated with the hospital; (2) the review and approval or rejection of that recommendation by a committee composed of representatives from a hospital's staff of physicians, nurses and pharmacists—the Pharmacy and Therapeutics Committee ("P & T Committee"); and (3) the P&T Committee's independent recommendation that a certain drug be included in or deleted from the hospital's formulary. The P&T Committee ultimately determines which drugs shall be listed on the formulary. The hospital pharmacists generally purchase drugs for the hospital. On occasion, hospital pharmacists from several institutions work in a collective purchasing group in order to secure bids from drug manufacturers.

Lilly, in selling its cephalosporin products, has varied its marketing approach. In October, 1972 Lilly instituted a marketing program entitled the Cephalosporin Savings Plan ("CSP"), a volume rebate scheme available to participating hospitals. A participating hospital could re-

[10] Although detail men also consult with office-based physicians and pharmacists in drug stores, these competitive marketing efforts are irrelevant for purposes of my decision in this case.

The gravamen of the complaint in this case concerns a marketing device aimed at boosting sales of Lilly cephalosporin products only in nonprofit hospitals. Therefore, any mention of hospitals in this opinion refers to nonprofit institutions, unless otherwise indicated.

ceive a percentage rebate based on its total Lilly cephalosporin purchases, the rebate to be paid in the form of Lilly merchandise. After the introduction of SmithKline's Ancef in October, 1973 and Lilly's Kefzol in November of that same year, Lilly altered its marketing strategy. The CSP was expanded to include Kefzol within the volume rebate scheme.[11] In April, 1975 Lilly instituted the aforementioned Revised CSP.

SmithKline, also, has offered hospitals several different rebate programs over the past few years. Its initial approach was the Pricing Insurance Plan ("PIP"), adopted in response to Lilly's inclusion of Kefzol in the CSP, which provided that participating hospitals could receive up to a five percent rebate on Ancef purchases. Furthermore, hospitals were eligible for an additional five percent rebate on each individual order for five hundred vials or more of Ancef.[12] Later, PIP, like the CSP, was revised to grant a third rebate equal to five percent of a hospital's Anspor purchases, if the hospital's combined volume of Ancef-Anspor purchases equaled or exceeded five hundred grams per quarter. SmithKline changed its marketing scheme again in April, 1975 after Lilly instituted the Revised CSP. The plaintiff eliminated its rebate on combined Ancef-Anspor purchases. Instead, hospitals qualified for rebates in the following manner: (1) a five percent rebate was returned on any Ancef purchases per quarter; (2) in addition, a five percent rebate was paid for any individual orders of Ancef of five hundred or more vials per quarter; and (3) a third five percent rebate was available for Anspor purchases of five hundred grams or more per quarter.[13]

[11] Prior to November, 1973 the CSP provided for rebates on hospital purchases of Keflin, Keflex, Loridine, and Kafocin. Kefzol was not marketed by Lilly until November, 1973.

[12] The rebates under PIP are paid in the form of SmithKline merchandise.

[13] Plaintiff's Exhibit P-189, at 15.

III.

Findings Of Fact:

Some record references are given to substantiate many of the findings of fact appearing herein. However, some of these findings are predicated on the cumulative facts and inferences from the testimony, and facts which are further documented on numerous other pages of the record which are not cited. I recognize that many, if not most, judges make no page references in support of their general findings. See, *e.g., United States* v. *International Boxing Club of N.Y.*, 150 F. Supp. 397, 401-419 (S.D.N.Y. 1957) *aff'd* 358 U.S. 242 (1959); *United States* v. *Brown Shoe Company*, 179 F. Supp. 721 (E.D. Mo. 1959), *aff'd* 370 U.S. 294 (1962). Thus, these record references are supplemental, but not exclusive.

A. The Parties And Jurisdiction.

1. Plaintiff SmithKline Corporation ("SmithKline") is a corporation organized and existing under the laws of the Commonwealth of Pennsylvania with its principal place of business in Philadelphia, Pennsylvania. [Stipulation 1.1.]

2. SmithKline manufacturers [sic], among other products, human ethical pharmaceutical products which it sells in interstate and foreign commerce. SmithKline markets its human ethical pharmaceutical products through independent wholesalers, who in turn sell the products to hospitals. [Stipulation 1.2; van Roden, Tr. 14, 36.]

3. In 1974, worldwide sales of SmithKline and French Laboratories, the division of SmithKline that conducts its human ethical pharmaceutical business, exceeded

$250,000,000, of which 65% to 70% were sales in the United States. [van Roden, Tr. 16]

4. Eli Lilly and Company ("Lilly") is a corporation organized and existing under the laws of the State of Indiana with its principal place of business in Indianapolis, Indiana. [Stipulation 1.4]

5. Lilly manufactures, among other products, human ethical pharmaceutical products which it sells in interstate and foreign commerce. In 1974, Lilly's worldwide sales of human ethical pharmaceutical products exceeded $500 million. [Stipulation 1.5; P-33.]

6. Lilly markets its human ethical pharmaceutical products through independent wholesalers to whom its sells the products, who in turn sell the products to others, including hospitals. [van Roden, Tr. 36; Lange, Tr. 1117-1118.]

7. U.S. general hospitals in 1973 and 1974 purchased more Lilly pharmaceutical products (in terms of dollars) than any other manufacturer's and at least four times as much Lilly pharmaceuticals as SmithKline pharmaceuticals. [Exhibit P-1, P-30.]

8. Lilly was the largest supplier of pharmaceuticals to wholesalers in 1973 and 1974. [Exhibit P-2.]

9. Jurisdiction of this subject matter duly appears pursuant to 15 U.S.C. §§ 1, 2, 14, 15 and 26. [See Complaint in C.A. 75-1102, ¶¶ 1 and 15.]

10. This matter comes before the Court on a motion for final injunction submitted by plaintiff in this action.

Appendix D.

B. The Human Ethical Pharmaceutical Industry.

11. Human ethical pharmaceutical products are drugs that are promoted to the medical profession and, generally, can be utilized only on the prescription of a licensed physician and dispensed by a licensed physician or by a licensed pharmacist. [van Roden, Tr. 17-18.]

12. Competition in the human ethical pharmaceutical drug industry generally is intense and is manifested in many forms, including: price competition; innovation, *i.e.*, the invention or discovery of new or improved drugs; marketing efforts, *e.g.*, selling, promotion, and advertising of drugs; establishing and maintaining the reputation of the manufacturer; producing a product of consistent quality; and providing consistent and needed service to all members of the health care delivery team. This finding is in reference to the industry generally and does not precisely describe the operation of the submarket, cephalosporins, as it functions pursuant to Lilly's Revised CSP. [Step, Tr. 1028-1029.]

13. Research and development leading to the invention and marketing of new or improved products is an important form of competition since a company that introduces a product to the market first, particularly a new anti-infective (antibiotic), is able to establish a position of reputation and loyalty in the medical community. [Step, Tr. 1028-1029.]

14. A major objective of SmithKline is the discovery and development of new and unique drugs. SmithKline spends about $35 million per year in the United States on research in human ethical pharmaceuticals, a majority of

Appendix D.

which is spent in research for discovery of new chemical entities. [van Roden, Tr. 17.]

15. A major objective of Lilly is the discovery and development of new and unique drugs. It invests over $100,000,000 per year, which is approximately 9 to 10% of its total annual sales revenue, in research and development. [Step, Tr. 1035-1037.]

16. The marketing of a new drug, a competitively important factor, consists of identification of the capabilities of the drug, and utilization of the marketing firm's abilities to promote and sell the drug. [Step, Tr. 1031.]

17. The most effective form of marketing human ethical pharmaceutical drugs is personal promotion to the medical profession through sales representatives ("detail men").

[van Roden, Tr. 18-19, 30-32, 57-58; Step, Dep. 33-34.]

18. An important competitive asset in the human ethical pharmaceutical industry is the strength and experience of a manufacturer's sales representatives. [van Roden, Tr. 18-19; Step, Tr. 1034.]

19. SmithKline has approximately 510 sales representatives, of whom 3% are registered pharmacists. [SmithKline response to Lilly Interrogatory No. 65.]

20. Among U.S. pharmaceutical manufacturers, Lilly has the largest number of sales representatives, nearly 1,200, 75% of whom are graduate registered pharmacists. [Step, Tr. 1034-1035.]

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C. The Relevant Market

21. The Relevant Market is the nonprofit hospital market for cephalosporin drugs. [Findings of Fact ¶¶ 25-51, *infra.*]

22. The Relevant Geographic Market is the United States.

23. Cross elasticity of demand and price sensitivity do not exist, to any significant degree, between the cephalosporins and other antibiotic or anti-infective drugs. [Findings of Fact, ¶¶ 33-48, *infra.*]

24. Without Lilly's Revised Cephalosporin Savings Plan, cross elasticity of demand and price sensitivity would exist among the cephalosporins. [Findings of Fact ¶¶ 35, 48a-51, *infra.*]

25. There is a sufficient disparity between cephalosporins on the one hand and all antibiotics (anti-infectives) on the other to distinguish the former from the latter. [Findings of Fact, ¶¶ 35-37, *infra.*]

26. Human ethical pharmaceutical products include among their number antibiotic drugs (anti-infectives). Antibiotics are chemical substances which are produced by microorganisms and are active against other microorganisms (bacteria). The major properties of an antibiotic are its spectrum of activity (*i.e.* which kinds of bacteria does it inhibit and which are resistent to it); its pharmacologic properties (*e.g.* how it is absorbed and excreted); its toxicities (side effects); and its allergenicity (*i.e.* how common are allergic reactions). [Exhibit P-178.]

Appendix D.

27. Antibiotics include, among others: ampicillins, carbenicillins, cephalosporins, chloramphenicol, erythromycins, aminoglycosides, gentamycins, nitrofurantoins, penicillins, semisynthetic penicillins and tetracyclines. Such drugs are available in both parenteral (injectable, whether intravenous or intramuscular) and oral forms. [D-2082; D-355; D-2116; van Roden, Tr. 17-18.]

i. Human Ethical Pharmaceuticals Purchased For Use In Hospitals

28. Hospitals generally serve bed-ridden, seriously ill patients while retail pharmacies serve ambulatory, less seriously ill patients. [P-189 at 2-3.]

29. In treating hospitalized patients, who generally have serious or life-threatening infections, physicians usually prescribe an injectable antibiotic, *i.e.* one that is administered intravenously or intramuscularly, sometimes following up with an oral antibiotic when the infection subsides. For outpatients they usually prescribe oral antibiotics; by contrast, retail pharmacies deal almost exclusively in orally administered forms of drugs. The market in this case is limited solely to the sale of drugs for use in hospitals. [First two sentences admitted by Lilly in its proposed final pretrial order; Ex. P-178, Ex. P-15; P-188 at 3-4 and Figs. 1-4.]

30. The Pharmacy and Therapeutics Committee ("P & T Committee") of a hospital, made up primarily of staff physicians and pharmacists as well as nurses, determines the drugs which will be used at the hospital and listed on its formulary, which is a list of drugs approved for use at that hospital. Drugs are listed on the formulary as a result of: (1) a recommendation that a drug be so included by a physician affiliated with the hospital; (2) the review and ap-

proval or rejection of that recommendation by the P & T Committee; and (3) the P&T Committee's independent recommendation that a certain drug be included in or deleted from the hospital's formulary. The hospital pharmacist generally purchases drugs for the hospital. He purchases on the basis of past usage (prescriptions written by that hospital's physicians). In marketing a drug to a hospital, a manufacturer seeks first to have the drug included in the hospital formulary and, second, to have the drug prescribed by physicians. [DiMatteo, Tr. 292-293; 327-332; Nudelman, Tr. 641-643, 651-659; P-105 at 9, 11-12; P-114 at 58, 61-62; P-118 at 7; P-129 at 8-9, 12-15; P-135 at 6; P-144 at 5-6; P-154 at 6-7, 10; P-164 at 6, 8, 11; van Roden, Tr. 30-32; Step, Tr. 1032-1033.]

31. Generic equivalents are drugs that have identical chemical structures and can be used interchangeably to treat the same conditions in a patient. [Shotwell, Tr. 264; DiMatteo, Tr. 293.]

32. Therapeutic equivalents are drugs that do not have identical chemical structures but give the same clinical response in treating a particular illness in a patient. [DiMatteo, Tr. 293.]

ii. Lack Of Interchangeability Between Cephalosporins And Other Antibiotics.

33. Cephalosporins are

> ". . . semisynthetic antibacterial agents that are closely related chemically to the penicillins and, like them contain a beta lactam ring as part of the nucleus. They are produced by the addition of substitutent groups to 7-aminocephalosporanic acid, a chemical nucleus obtained from cephalosporin C, which is elaborated by the fungus *Cephalosporium*. The cephalosporins interfere with the synthesis of the bacterial cell wall by inactivating a transpeptidase, thereby preventing cross-linkage of peptidoglycan chains." [A.M.A. Drug Evaluations 523 (2d Ed. 1973).]

34. Antibiotics such as cephalosporins can be lawfully dispensed to a hospitalized patient only on the prescription of a licensed physician. Assuming that a physician prescribes an antibiotic that is approved for use in the hospital (*i.e.*, listed in the hospital formulary), the hospital pharmacist must fill the prescription with the prescribed drug or its generic equivalent, *i.e.*, a drug having an identical chemical structure. Thus, a prescription for cefazolin must be filled with either Ancef or Kefzol. A prescription for a cephalosporin cannot be filled with a non-cephalosporin, such as penicillin, ampicillin or tetracycline. Thus, the hospital physician population, in practice, does not view other antibiotics as reasonably interchangeable with the cephalosporins. [DiMatteo, Tr. 296-297; Step deposition at 48-49; Schiefe, Tr. 1011-1013; P-164 at 8-9, 14-15; P-144 at 8, 16, 49-50; P-129 at 23-24; P-118 at 16-17; P-135 at 10-12; P-154 at 12; P-105 at 12; P-114 at 65-66.]

iii. Special Characteristics Of Cephalosporins

35. The cephalosporin family of antibiotics all have, for practical purposes, an identical spectrum of activity and all except Loridine are among the safest of antibiotics, with very little toxicity and allergenicity. They differ significantly only in pharmacological properties and toxicity and are therefore generally interchangeable for treatment of the same conditions. Given this interchangeability, Loridine should be included within the same family of drugs and the same product market. Despite its relatively higher toxicity, Loridine is still less toxic than some other anti-

biotic drugs—e.g. the aminoglycosides. [Ex. P-11; P-12; P-35; Nudelman, Tr. 707; Kass, Tr. 828-829; Holloway, Tr. 856-857; Schiefe, Tr. 1007-1008; Ex. D-2096; Ex. P-178.]

36. There is a certain degree of interchangeability among all antibiotic drugs. Cephalosporins, penicillins and the aminoglycosides kill rather than merely inhibit the growth of bacteria, contrary to the effect of the erythromycins, chlorampenicol and the tetracyclines. However, there are noticeable and acknowledged differences in the relative effectiveness of cephalosporins as compared with other antibiotics in the treatment of certain illnesses. The cephalosporins are far less toxic than the aminoglycosides; this reduced toxicity is a characteristic shared by the penicillins. However, the cephalosporins are:

a. Effective in treating Klebsiella—no penicillin is capable of the same activity.

b. Active against *both* staphylococci and gram negative bacilli. Most staphylococci are resistant to penicillin G, ampicillin and carbenicillin, which have a good gram negative bacillus spectrum, whereas methicillin-like penicillins are active against staphylococci but lack gram negative bacillus activity. Cephalosporins thus provide a broader spectrum of activity.

c. Although there is some cross-allergenicity between penicillins and cephalosporins, it is by no means complete. Most experts in Infectious Diseases will use cephalosporins in serious infections in penicillin-allergic patients who require therapy with a penicillin or a cephalosporin.

Therefore, while the cephalosporins and other antibiotics are equally effective in treating some illnesses, for other illnesses there is no equal interchangeability. Regardless of some overlapping, the cephalosporins have sufficient

peculiar characteristics and uses to make them a distinguishable product market. [Ex. P-178; P-20; P-21; P-24; P-25; P-26; P-27; P-31; P-34; Holloway, Tr. 844-846.]

37. The plaintiff and defendant recognized the special attractiveness and peculiar qualities of a family of antibiotics effective in treating both gram positive and gram negative infections. Cephalosporins demonstrated the above capabilities, and were promoted as unique drugs. [Exhibit D-102A at 9; P-20.]

iiii. Lack Of Price Sensitivity Between Cephalosporins And Other Antibiotics

38. The cost of drugs is a relatively small percent of the overall daily cost of therapy for a hospitalized patient. [Step deposition at 48; Kass, Tr. 826.]

39. In selecting an antibiotic to prescribe for a hospitalized patient, the two properties given most weight by physicians are efficacy and safety. In comparison with these, cost is an insignificant factor. [Exhibit P-38; Step Dep. at 47-48; Holloway, Tr. 846, 861; Schiefe, Tr. 989.]

40. Cephalosporins are very expensive compared to other antibiotics in terms of cost per patient for a daily dose. Injectable cephalosporins cost several times as much as injectable penicillin G, a widely used antibiotic which is often compared to the cephalosporins. [Last sentence admitted by Lilly in its proposed pretrial order; Ex. P-170, Tables II and IV; Chappell, Tr. 111-114; Ex. P-38; Step deposition at 45-47; P-164 at 14; P-129 at 21-23; P-144 at 15-16; P-135 at 17; P-154 at 11-12; P-105 at 50-51; P-114 at 65; D-2129.]

41. The average cost per day of therapy for the

cephalosporins, as compared with other antibiotic drugs, is as follows:

COST/DAY OF MAJOR ANTI-INFECTIVES

	Keflin 4.0 gm /day	*Loridine* 2.0 gm /day	*Poly-cillin-N* 2.5 gm /day	*Kefzol* 2.0 gm /day	*Ancef* 2.0 gm /day
1965	$17.76				
1966	12.96		$11.40		
1967	12.96		11.40		
1968	12.96		8.40		
1969	12.96	$ 7.80	8.40		
1970	12.96	7.80	7.25		
1971	12.96	7.80	6.48		
1972	11.52	7.28	6.48		
1973	11.24	7.28	3.25	$ 9.68	$ 9.88
1974	11.24	7.14	3.25	9.60	9.68

	Chloro-mycetin 4.0 gm /day	*Kantrex* 1.0 gm /day	*Gara-mycin* 240 mg /day	*Coly-mycin* 300 mg /day	*Terra-mycin* 2.0 gm /day	*Bi-Cillin ck 1,200 MU* 2.4 mu /day
1965	$11.12	$ 4.08		$12.60	$ 8.16	$ 3.22
1966	11.12	4.08		12.60	8.16	3.22
1967	10.80	4.08		12.60	8.16	3.58
1968	9.60	4.08		12.60	8.16	3.74
1969	10.56	4.08		12.60	8.16	3.74
1970	10.56	4.08	21.00	12.60	8.16	3.94
1971	11.64	4.37	17.28	12.60	8.16	3.94
1972	11.64	4.80	17.28	14.50	8.96	3.94
1973	12.68	4.80	15.77	14.50	11.12	4.18
1974	13.68	4.80	13.17	14.50	9.84	4.18

EXHIBIT D-2129

42. During the first quarter of 1975, more than 95% of the general hospitals purchased cephalosporins and more than 89% purchased injectable cephalosporins. There is probably no short-term general hospital, and certainly no significant number of short-term general hospitals, that does not purchase and stock cephalosporins. [Admitted by Lilly in its proposed final pretrial order; Ex. P-170, Tables Ia, Ib, V1a; Chappell, Tr. 109-110, 121-124; Step deposition at 64.]

43. There are about 6,000 non-profit general hospitals in the United States serving more than 100,000 prescribing physicians. During the twelve-month period ending August 1974, the total number of "patient starts" of cephalosporins in hospitals (meaning the number of times cephalosporin treatment was initiated) was more than 2 million. [Chappell, Tr. 105-106; Gootee, Tr. 1210-1211; Shotwell, Tr. 789, 794.]

44. There is a particular demand by doctors for the peculiar qualities of cephalosporins in contradistinction to other antibiotics; that demand is reflected in hospital purchases of cephalosporins. In 1974, U.S. hospitals purchased more cephalosporins (in terms of dollars) than any other antibiotic. Their total purchases exceeded $120 million of which more than 75% were injectables. [Second and third sentences admitted by Lilly in its proposed pretrial order; Exhibit P-4; Nudelman, Tr. 705-706.]

45. Hospital purchases of cephalosporins since 1970 have been as follows:

	1970		*1971*		*1972*	
	Volume	*Share*	*Volume*	*Share*	*Volume*	*Share*
	$	%	$	%	$	%
*Total Cephalosporins***	67,325	100.0	81,239	100.0	98,520	100.0
Lilly	67,325	100.0	81,239	100.0	98,520	100.0
Keflin (9/64)	40,693	60.4	51,062	62.9	62,796	63.7
Keflex (2/71)	—	—	11,239	13.8	20,752	21.1
Kefzol (11/73)	—	—	—	—	—	—
Keflin Neutral (5/75)	—	—	—	—	—	—
Loridine (3/68)	25,622	38.1	17,916	22.1	14,607	14.8
Kafocin (7/70)	994	1.5	1,016	1.3	356	0.4
Cephaloridine (9/68)	16	—	6	—	9	—
Bristol						
Cefadyl (5/74)	—	—	—	—	—	—
SmithKline	—	—	—	—	—	—
Ancef (10/73)	—	—	—	—	—	—
Anspor (10/74)	—	—	—	—	—	—
Squibb						
Velosef (8/74)	—	—	—	—	—	—

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	1973		1974		1975*	
	Volume	*Share*	*Volume*	*Share*	*Volume*	*Share*
	$	%	$	%	$	%
*Total Cephalosporins***	105,405	100.0	123,771	100.0	65,007	100.0
Lilly	103,858	98.5	111,177	89.8	57,611	88.6
Keflin (9/64)	68,233	64.7	67,854	54.8	30,630	47.1
Keflex (2/71)	22,945	21.8	25,346	20.4	13,834	21.3
Kefzol (11/73)	1,149	1.4	13,593	11.0	8,355	12.9
Keflin Neutral (5/75)	—	—	—	—	3,340	5.1
Loridine (3/68)	10,996	10.4	4,322	3.5	1,430	2.2
Kafocin (7/70)	191	0.2	61	0.1	21	—
Cephaloridine (9/68)	14	—	1	—	1	—
Bristol						
Cefadyl (5/74)	—	—	1,865	1.5	1,766	2.7
SmithKline	1,547	1.5	10,425	8.5	5,292	8.1
Ancef (10/73)	1,547	1.5	10,355	8.4	4,988	7.7
Anspor (10/74)	—	—	70	0.1	304	0.5
Squibb						
Velosef (8/74)	—	—	304	0.3	338	0.5

* 6 Months data.

** Dates in parentheses are dates of introduction.

[P-170, Table VIII, at 36.]

46. Changes in the relative amounts of cephalosporins and non-cephalosporins purchased by hospitals are not directly related to the relative costs thereof. During the period from 1966 through 1974, hospital purchases of cephalosporins increased by nearly 700%. In the same period hospital purchases of penicillin G decreased by nearly 60%. [Ex. P-170, Table III; Chappell, Tr. 113; P-38; P-154 at 66.]

47. A small number of pharmacist [sic] and physicians are encouraging the decreased usage of cephalosporins, in favor of other antibiotics for reasons of economy. The vast majority of hospitals do not purchase their antibiotic requirements in accordance with the efforts of these persons.

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[Kass, Tr. 819-820, 825; Nudelman, Tr. 704; Holloway, Tr. 857-858.]

48. There has been no erosion in the price of Keflin in the last ten years. [Step, Tr. 1062.]

v. Price Sensitivity And Interchangeability Of Use Among Cephalosporins In The Absence Of Lilly's Revised CSP

48. Many hospitals purchase their drug requirements for specific periods by letting formal bids and buying from the lowest bidder for the entire period (usually from one calendar quarter to one year in length). This is particularly true of an increasing number of hospitals who are forming "Buying groups" for the purpose of making such bids. [DiMatteo, Tr. 293-294, 298-301, 305-307, 356-358; P-129 at 11; P-135 at 7-8; P-144 at 5-6; P-164 at 7-8.]

49. When there are two reputable manufacturers of the same generic pharmaceutical, as in the case of cefazolin, most hospitals can be expected to fill most, if not all of their requirements with the brand which costs the least. This is particularly true of hospitals that buy such products on a bid basis. About 50% of hospital purchases of cefazolin are made on this basis. [DiMatteo, Tr. 293-296, 301, 356-358; Step, deposition at 60 (pharmacist depositions); van Roden, Tr. 38-39; P-57; P-71; Nudelman, Tr. 653-655, 660, 706; Schiefe, Tr. 1013-1015; P-164 at 7-12, 24-25; P-144 at 8-9, 11, 32, 35; P-129 at 13-15, 42; P-135 at 12-13, 47; P-154 at 8-10, 43, 63; P-105 at 13-14, 34-35, 47; P-114 at 62, 82.]

50. Ancef and Kefzol are equivalent drugs, so that most hospitals stock only one brand. Thus, of hospitals purchasing cefazolin, about 75% purchase only one brand

(either Ancef or Kefzol but not both). Of those purchasing both brands, about half purchase 70% or more of one of them. [Exhibit P-170, Table V; Chappell, Tr. 115-121; Exhibits P-57, P-71; DiMatteo, Tr. 294, 295a; Exhibits P-105 at 15, P-114 at 66; P-129 at 24, P-135 at 17, P-144 at 16; P-154 at 12; P-164 at 15.]

51. Dr. Weston's economic theory of price responsiveness and cross-elasticity of demand among several hypothetical current and future generations of antibiotic drugs is rejected; the evidence does not establish that the relevant product market is all antibiotic or all anti-infective drugs. [Weston, Tr. 1624-1628; Exhibit P-188.]

D. History Of Cephalosporins

52. The first cephalosporin became available for use in the treatment of patients with infectious diseases in United States hospitals when Lilly introduced cephalothin into the United States market in 1964. Lilly markets cephalothin under the brand name Keflin. Keflin is administered parenterally. [D-2000]

53. In 1967, Lilly introduced another cephalosporin, cephaloridine, under the brand name Loridine. Loridine is administered parenterally. [D-2002.]

54. In 1971, Lilly introduced another cephalosporin, cephaloglycin, under the brand name Kafocin. Kafocin is administered orally. [D-2003.]

55. In 1972, Lilly introduced another cephalosporin, cephalexin, under the brand name Keflex. Keflex is administered orally. [D-2004.]

56. In October, 1973, SmithKline introduced a cephalosporin, cefazolin, under the brand name Ancef. Ancef

is the generic equivalent of Lilly's Kefzol, and was introduced prior to Kefzol. Ancef is administered parenterally, both intramuscularly and intravenously. [van Roden, Tr. 23, 43; Stipulation 3.9.]

57. In November, 1973, Lilly began marketing another cephalosporin, cefazolin, under the brand name Kefzol. Kefzol is administered parenterally, both intramuscular and intravenously. [D-2001.]

58. In May, 1974, Bristol introduced cephapirin under the brand name Cefadyl. Cefadyl is a parenteral product. [D-1047.]

59. In August, 1974, Squibb introduced cephradine under the brand name Velocef. Velocef is marketed in oral and parenteral forms. [Exhibit D-2008.]

60. In November, 1974, SmithKline began marketing Anspor, the generic equivalent of Squibb's Velocef, in oral form. [van Roden, Tr. 53-55.]

61. All Lilly cephalosporins except cefazolin are covered by U.S. patents under which Lilly has exclusive rights, and Lilly is the sole U.S. source of these products. Cefazolin is also covered by a U.S. patent or patents, under which both SmithKline and Lilly have non-exclusive licenses, as to each other, and these two companies are the only sources of cefazolin in the United States. [Admitted by Lilly in its proposed final pretrial order; Lilly's Answer, para. 6-8; Lilly's answers to plaintiff's interrogatories 14-18; Hutchinson deposition at 21.]

E. SmithKline's Entry Into The Market

62. Historically, SmithKline's prescription pharmaceuticals have not included antibiotics to any significant degree. [van Roden, Tr. 16.]

63. In the late 1950's SmithKline made a substantial commitment of research and development resources toward antibiotic discovery, concentrating on the cephalosporin field. Accordingly, SmithKline in the late 1950's and early 1960's, did substantial research in semi-synthetic penicillins and cephalosporins. Its interest in cephalosporins goes back to 1959. [van Roden, Tr. 19, 22.]

64. In 1962 SmithKline negotiated with Lilly for the right to use Lilly's patented process for producing a basic cephalosporin intermediate called 7ACA. Alternatively, SmithKline sought to buy 7ACA from Lilly. [Admitted by Lilly in its proposed final pretrial order.]

65. In the late 1960's SmithKline's interest revived. Management felt that cephalosporins would be the antibiotics of the 1970's and that SmithKline, as a result of previous efforts, was in an excellent position to enter this market. It adopted a two-pronged approach: (1) a long-term research and development effort to develop new antibiotics with therapeutic advantages over those already on the market; (2) a licensing program to obtain immediate rights to products already developed by others. [van Roden, Tr. 19, 22-23.]

66. SmithKline's licensing program resulted in 1971 agreements with Fujisawa Pharmaceutical Company of Japan for cefazolin and with Squibb for cephradine. Squibb and SmithKline each had patents relating to certain aspects of cephradine. [Admitted by Lilly in its proposed final pretrial order; van Roden, Tr. 23.]

67. Cefazolin was originally synthesized by Fujisawa. Clearance for marketing in the United States resulted from SmithKline's efforts with respect to Ancef. Lilly obtained clearance for Kefzol by "piggy backing" on

SmithKline's clinical studies. [First sentence admitted by Lilly in its proposed final pretrial order, van Roden, Tr. 23-28.]

68. SmithKline's decision to enter the field of antibiotics with Ancef entailed a very substantial commitment. As of the present time, SmithKline's investment in Ancef, including research, development, clinical testing, promotion, personnel and production facilities totals more than $20 million. [van Roden, Tr. 25-26, 66-67; Ex. P-5.]

69. In October 1973, when SmithKline began to market Ancef, SmithKline considered cefazolin (Ancef) a promising drug, much better than Keflin for IM, equally good for IV. It believed that the primary market for Ancef would be in hospitals. [Admitted by Lilly in its proposed final pretrial order; van Roden, Tr. 23-24, 27, 72.]

70. SmithKline knew that its cost of goods for Ancef would be substantially higher than Lilly's cost for Kefzol. However, SmithKline management believed there would be a number of possibilities for lowering SmithKline's cost to a level competitive with Lilly's, once SmithKline achieved a substantial level of sales. [Admitted by Lilly in its proposed final pretrial order.]

71. SmithKline would not have entered the hospital antibiotic market if its prospects had been limited to Ancef alone or even to Ancef and Anspor, because such a limited market entry would not have justified the required large investment in money and effort. In deciding to make antibiotics a major commitment, SmithKline viewed Ancef and Anspor as the first of a series of specialty antibiotics, in which SmithKline, through its research efforts, would play a substantial part as originator and/or developer. [van Roden, Tr. 22, 31-32.]

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72. The names of the cephalosporins in current use in the United States are listed below. There is no generic equivalent for any of these cephalosporins except in the cases noted. The dates in parentheses, are the dates the particular cephalosporin was introduced in the market.

Injectable

Generic Name	*Brand Name*
cephalothin—(1964)	Keflin (Lilly)
cephaloridine—(1967)	Loridine (Lilly)
cefazolin—(1973)	Kefzol (Lilly)**
	Ancef (SmithKline)**
cephapirin—(1974)	Cefadyl (Bristol)
cephradine—(1974)	Velosef (Squibb)***

Oral

cephalexin—(1972)	Keflex (Lilly)
cephaloglycin—(1971)	Kafocin (Lilly)
cephradine—(1974)	Anspor (SmithKline)***
	Velosef (Squibb)***

** Generic equivalents

*** Generic equivalents

F. Competition Between SmithKline & Lilly—1973 & 1974

73. When SmithKline entered the market with Ancef, it felt that there was only a limited potential for overall expansion in injectable cephalosporins. Consequently, SmithKline felt that Ancef would have to obtain its growth at the expense of Lilly's established products, Loridine and Keflin. Because Keflin was used much more than Loridine (the use of which was declining), SmithKline

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decided to position Ancef in competition with Keflin. Accordingly, SmithKline decided to price Ancef about 5% below Keflin on a recommended daily dosage basis. [van Roden, Tr. 27-29, 34; Exhibits P-49, P-53.]

74. About one month after SmithKline introduced Ancef, Lilly countered with Kefzol, which it priced 2% under Ancef. SmithKline matched this price, increasing its spread below Keflin to 7%. [van Roden, Tr. 34, Lilly's Answer to Plaintiff's Interrogatory No. 7.]

75. SmithKline's sales strategy was to emphasize that Ancef is equally efficacious and more convenient than Keflin as far as the doctor and the hospital staff are concerned, in addition to being lower in cost to the patient. Thus:

—Since Ancef can be administered both IM and IV, whereas Keflin is rarely administered IM, there is no need to change drugs when the mode of administration is changed.

—Because Ancef provides higher and more sustained blood levels, Ancef can be administered less often.

—To the extent Ancef is administered IM rather than IV, there may be savings in hospital procedure costs.

[van Roden, Tr. 23-24, 29; Exhibits P-13, P-14, P-44; Shotwell, Tr. 899-902, 905.]

76. Initially, SmithKline concentrated its promotional efforts on large teaching hospitals which not only use cephalosporins in quantity, but also sometimes influence the doctors they train and, through their prestige, the medical profession generally. [van Roden, Tr. 29-30.]

77. Also, large hospitals strongly tend to use proportionately much more Keflin, so that Ancef's positioning directly against Keflin would be directly related to such hospitals. [Lochridge, Tr. 387-390.]

78. Prior to the institution of the Revised CSP, SmithKline provided the only effective competition for Lilly in the cephalosporin market. By the end of 1974 plaintiff's sales of Ancef were at an annual level in excess of $10 million and its share of cefazolin sales was in excess of 40%. However, at the end of 1974, SmithKline commanded only 8.5% of the cephalosporin market; in contrast, Bristol had a 1.5% share of the cephalosporin market; Squibb enjoyed only 0.3% of all cephalosporin sales. [van Roden, Tr. 33-34; Exhibit P-170, Table VIb at 32, Table VIII at 36; Exhibit P-6; Exhibit P-53; Exhibit P-54.]

79. Initially, SmithKline and Lilly set virtually the same net price to wholesalers. Lilly, in anticipation of competition from cephalosporins sold by others, had previously adopted, in October, 1972, a Cephalosporin Savings Plan ("CSP") under which hospitals received cumulative graduated rebates (up to 12%) on their cumulative quarterly purchases of Lilly's Keflin, Keflex, Kafocin and Loridine. As of November, 1973, Lilly expanded the CSP to include Kefzol. SmithKline, in response to Lilly's expanded CSP, countered with its Price Insurance Plan ("PIP"), a flat 5% rebate on total Ancef purchases plus an additional 5% for Ancef orders of 500 vials or more. After the introduction of Anspor into the cephalosporin market, and again in response to Lilly's inclusion of Keflin, Keflex, Kafocin and Loridine for rebate purposes under the CSP, SmithKline expanded PIP to include Anspor. Hospitals were then eligible not only for the 5% rebate

on their total volume of Ancef purchases, plus the additional 5% rebate on orders for 500 vials or more of Ancef, but also for a 5% rebate on Anspor purchases each quarter—provided that the hospital's total purchases of SmithKline cephalosporins were equal to or greater than 500 grams per quarter. The rebates on Ancef were in no way conditioned on the purchase of Anspor, nor were hospitals required to make any minimum purchase of both Anspor and Ancef to qualify for the new rebate. Later, on bid business, SmithKline went to graduated rebates between 5% and 10%, and sometimes above 10%. SmithKline's PIP rebates averaged about 7.5% of sales. [van Roden, Tr. 35-37; Exhibits P-28, P-39, P-40, P-41, P-48; Hutchinson deposition at 38-39; Step Deposition at 11-12; Lilly's answers to plaintiff's interrogatories No. 201, 202, 203; D-437; P-189.]

80. The original CSP provided for a rebate to be paid to participating not-for-profit hospitals, in the form of Lilly merchandise of the hospital's choice (with certain very limited exceptions such as controlled substances), at an established rate based solely upon the total number of grams of Lilly cephalosporins purchased by the hospital. Rebates were payable quarterly, but the rate of rebate was also computed retroactively on an annualized basis in order to give each hospital the benefit of any higher rate of rebate it could earn on such a basis. [D-1010; P-76, Luedke deposition at 15-16; Southard deposition at 18-19.]

81. The rebate dividend levels under the original CSP were as follows:

Dividend Level	*Quarterly Purchase (Total Grams)*
2%	0- 5,999
3%	6,000- 8,999
4%	9,000-11,999
5%	12,000-17,999
6%	18,000-23,999
7%	24,000-29,999
8%	30,000-38,999
9%	39,000-47,999
10%	48,000-71,999
11%	72,000-95,999
12%	96,000-or more

[D-1009.]

82. During 1974 SmithKline and Lilly reduced their prices in many instances to permit and encourage the wholesalers to offer lower prices to hospitals inviting bids or otherwise negotiating for the purchase of cefazolin. [Admitted by Lilly in its proposed final pretrial order; Ex. P-7; P-42; P-50.]

83. The competition between SmithKline and Lilly resulted in lower cefazolin's [sic] cost to hospitals, particularly those purchasing on bids. There has been no comparable reduction in the price of Keflin. [First sentence admitted by Lilly in its proposed final pretrial order; Ex. P-7; P-50; Step deposition at 98-100; Lilly's answers to plaintiff's interrogatories No. 42 and 42(a); Step, Tr. 1062; Lange, Tr. 1122-1124.]

G. Lilly's Adoption Of The Revised CSP

84. Cephalosporins are particularly important to Lilly, accounting for 15% of the company's total consolidated net

sales in 1972 and 25% in 1974. The cephalosporins involved in this litigation (*i.e.*, those sold to U.S. hospitals) accounted in 1974 for nearly 10% of Lilly's sales and more than 15% of Lilly's profits. [P-27; P-29; P-33; P-36; P-37; Responses No. 42, 43 and 44 to Lilly's answers to SmithKline's interrogatories; P-33 at 18; see "Memorandum to the Court explaining calculations made in Plaintiff's Trial Memorandum," at 2.]

85. When Lilly began to market Kefzol, it promoted Kefzol as a replacement for Loridine for IM use and continued to promote Keflin for IV use. This was in Lilly's interest because Lilly had exclusive rights to Keflin (but not to Kefzol) and because Lilly's profit margins were very much higher on Keflin. [Admitted by Lilly in its proposed final pretrial order, to the extent that Lilly promotes Kefzol for IM use and continues to promote Keflin for IV use; P-43; P-45; P-49; Step deposition at 11; Hutchinson deposition at 26-27, 34; Leudke deposition at 14-15; Lilly's answers to plaintiff's interrogatories No. 42, 43, 45, 60, 60(a); P-53; P-32; Step, Tr. 1056-1058, 1074.]

86. Lilly's objective was to obtain 75% of cefazolin sales, which, when combined with sales of its exclusive cephalosporins, would maintain its share of the cephalosporin market at or above 90%. [Admitted by Lilly in its proposed final pretrial order to the extent that Lilly's objective was to capture 75% of cefazolin sales; Ex. P-170, Tables VIb, VIII; Chappell, Tr. 124-126, 131-133; P-29; P-45; P-50; Step deposition at 57; P-32; P-54.]

87. Despite Lilly's earlier estimates that cefazolin would only replace Keflin for 15% of uses, early in 1974 Lilly found that Ancef and Kefzol were being used as a replacement for Keflin more than 60% of the time and that Lilly was falling substantially short of its 75% goal in sales of

cefazolin. [Admitted by Lilly in its proposed final pretrial order; P-49; P-50; Leudke deposition at 11-12; P-43; P-52; P-53.]

88. Thereafter, Lilly placed additional emphasis on efforts to avoid replacing Keflin with Kefzol and succeeded in cutting the percentage of cases in which Kefzol replaced Keflin to less than 50%. Meanwhile, the rate of replacement of Keflin by Ancef increased to more than 80%. [Admitted by Lilly in its proposed final pretrial order; Leudke deposition at 12-14; P-52; P-53.]

89. Also, in the second half of 1974, Lilly set up a Cephalosporin Task Force to devise a means of combatting SmithKline. The guidelines for the task force were that any new program must: (a) include as many as possible of the hospitals that were participating in the original CSP, (b) be more competitive price-wise than the original CSP, and (c) cost no more dollars than the orginal CSP to Lilly. [Second sentence admitted by Lilly in its proposed final pretrial order; Hutchinson deposition at 51; Southard deposition at 55; Leudke deposition at 31-32, 45-46; Lilly's answer to plaintiff's interrogatory No. 21(a); P-58; P-71.]

90. The task force recommended, and Lilly adopted, the Revised CSP which was put into effect by Lilly on April 1, 1975, and provides for a rebate to be paid to participating hospitals, in the form of Lilly merchandise of the hospital's choice (with the same limitations as under the original CSP), at an established rate (the "base dividend") based upon the total number of grams of Lilly cephalosporins purchased by the hospital. The rates at which rebates are paid upon a given number of grams of Lilly cephalosporins purchased are somewhat lower, by approximately 3%, than the rates at which rebates were paid for the purchase of the same number of grams under the original CSP. In

addition, however, the Revised CSP provides for an additional 3% rebate (the "bonus dividend") to be paid upon the hospital's total cephalosporin purchases if the hospital buys established minimum quantities (separately established for each hospital) of each of any three of Lilly's five cephalosporin products. [Admitted by Lilly in its proposed final pretrial order; P-73; P-78.]

91. The purchase levels to qualify for the base dividend, and the corresponding levels to qualify for the bonus dividend under the Revised CSP are as follows:

Dividend Level	*Base Dividend Qtr. Purchase (Total Grams)*	*Bonus Dividend Qtr. 3 Percent (Total Grams)*
0%	0- 7,999	150
1%	8,000-10,999	300
2%	11,000-16,999	400
3%	17,000-22,999	500
4%	23,000-29,999	750
5%	30,000-38,999	1,000
6%	39,000-47,999	1,250
7%	48,000-71,999	1,500
8%	72,000-95,999	1,750
9%	96,000-or more	2,000

[Exhibit P-78.]

92. Lilly anticipated that virtually all hospitals would purchase the specified minimum in Keflin and Keflex; that virtually none would purchase the minimum in Kafocin; and that only a handful would purchase the minimum in Loridine. This meant that the great bulk of hospitals, in accordance with the prescribing habits of their physicians and in order to qualify for the bonus rebate on Keflin and Keflex, would purchase Kefzol in the specified minimum amount. [See Finding of Fact ¶ 30; Lilly's answer to

plaintiff's interrogatory No. 68; van Roden, Tr. 40; DiMatteo, Tr. 297-298, 305; P-75; P-76; P-164 at 12-13, 20-22, 27-28; P-144 at 22-23, 35, 47; P-129 at 29-33, 64; P-135 at 24, 36, 73-74; P-154 at 21-22, 30-31, 61-62; P-105 at 11, 21-22; P-114 at 58-59, 70, 75, 88-89.]

93. Lilly knew, and instructed its salesmen to emphasize, that the entire bonus rebate (including the bonus rebate on Keflin and Keflex) should be considered as an inducement to buy Kefzol instead of Ancef. Lilly supplied its salesmen with calculations showing that to meet this inducement SmithKline would have to offer a rebate on Ancef in excess of 20%. [DiMatteo, Tr. 315; Ex. P-15, P-16, P-18, P-19, P-92; Leudke, deposition at 43; pharmacists' depositions; P-72; P-95; P-96; P-97; P-98; P-99; P-100; P-164 at 39; P-144 at 29-31.]

94. Lilly hoped that the popularity of Keflin and Keflex would cause hospitals to opt to participate in the Revised CSP's bonus rebate option. However, all of Lilly's cephalosporin products, including its patented products Keflin and Keflex, are now and have been at all times separately available for purchase by any hospital in the United States, whether or not it participated in the original CSP or the Revised CSP. Both before and after the adoption of both the original CSP and the Revised CSP, some hospitals purchased Keflin and Keflex without participating in either plan. Hospitals always retained the option of losing the rebate and purchasing most of their cephalosporin requirements from other cephalosporin manufacturers. [See Plaintiff's Exhibit P-90, at 2; Step, Tr. 1046-1047; Lange, Tr. 1114-1119; D-1143.]

95. The Revised CSP as adopted and as implemented does not contain any provision requiring that any hospital purchase any Lilly product in order to obtain any other

Lilly product; nor does it contain any provision which requires any hospital to refrain from purchasing any product from any source in order to obtain any Lilly product, or which conditions the payment of any rebate on the purchase of any Lilly product, otherwise unavailable to the purchaser, upon an agreement that the hospital shall refrain from purchasing any product from any source. [Step, Tr. 1046; P-78; D-1100A.]

96. After Lilly instituted its Revised CSP, SmithKline, in an attempt to survive in the marketplace during the trial of this lawsuit, changed its PIP rebate program. Under this new arrangement the plaintiff eliminated its rebate on combined Ancef-Anspor purchases. Instead, hospitals qualified for rebates in the following manner: (1) a five percent rebate was returned on any Ancef purchases per quarter; (2) in addition, a five percent rebate was paid for any individual orders of Ancef of five hundred or more vials per quarter; and (3) a third five percent rebate was available for Anspor purchases of five hundred grams or more per quarter. Ancef and Anspor were not linked in any way through SmithKline's revision of its PIP marketing scheme—rebates were available upon the separate purchase of each of SmithKline's products. [Plaintiff's Exhibit P-189.]

H. Lilly's Pricing Strategy

96. Lilly has a unique position in the cephalosporin market. Until 1973, Lilly commanded 100% of the cephalosporin market. At that point in time, SmithKline introduced Ancef into the market, garnering 1.5% of the cephalosporin business; Lilly retained 98.5% of the market. As late as the end of 1974, Lilly continued to control 89.9% of the relevant product market, despite the fact that three

other companies were marketing cephalosporin products. SmithKline, in that same year, secured only 8.5% of the gross sales. Lilly, from 1970 through the first quarter of 1975 has received $519,730,000 in gross sales of its cephalosporin products. By comparison, SmithKline has grossed $17,264,000 in sales of Ancef and Anspor, Squibb has received $642,000 on its sales of Velocef, and Bristol in marketing Cefadyl had gross sales of $3,631,000. [Exhibit P-170, Table VIII at 36; See Finding of Fact ¶ 56.]

97. Although the Revised CSP does not constitute an illegal tying arrangement, only 2% of Keflin purchases in the second quarter of 1975 were made outside of the Revised CSP. [Lange, Tr. 1118-1119.]

98. Lilly knew that cost is not an important factor in a physician's choice of an antibiotic for a hospitalized patient. It calculated that even a 50% reduction in the price of Keflin would not greatly increase Keflin sales. [Ex. P-38; Step, deposition at 47-48.]

99. Lilly calculated that SmithKline's profit margins on Ancef were as much as 25% lower than Lilly's margin on Kefzol. [P-38; P-46; P-47.]

100. So long as its price on Kefzol was equal to or not much higher than SmithKline's, Lilly counted on its reputation with physicians (particularly surgeons) and the reluctance of hospitals to suffer a decline in rebates (as compared with the rebates previously received under the CSP) because of their failure to participate in the Revised CSP, as a strategy to achieve its domination (goal of 75%) of the cefazolin market. [P-42; P-45; P-48; P-50; Step, Dep. at 57-64, 81; P-51; Step, Tr. 1029-1030.]

101. In many other cases, to keep its domination of the market, Lilly quoted a special price to its wholesalers where the hospital had received, or was about to receive, a bid on Ancef lower than the bid on Kefzol. One purpose of this procedure was to minimize the inroads that Ancef would otherwise make on Keflin. [Lilly's answers to plaintiff's interrogatories No. 19(d), 38, 58(a)(3); P-53; P-70.]

I. Competitive Effects Of The Revised CSP

102. Exclusive of the impact of the Revised CSP, the competitive factors applicable to the human pharmaceutical industry would be equally applicable to the broad antibiotic market. Thus, such competitive elements would necessarily be operative in the cephalosporin submarket. [See Step, Tr. 1042; See Finding of Fact ¶ 12.]

103. The barriers to entry and survival in the cephalosporin product market are substantial. It is difficult to dislodge the first company which introduces a line of products from its position of dominance. Absent the invention of a new cephalosporin which eclipses the performance of Lilly's Keflin, a new market entrant must concentrate on marketing efforts to convince the hospital-based physician population of the merits of its cephalosporin product. The cost of marketing a cephalosporin product, absent the expense for salesmen (detail men)—the most costly and important aspect of the marketing effort—is set forth in Lilly's answers to interrogatories. Lilly has spent since 1973, more than $2,400,000 on Kefzol's promotion (benefiting from SmithKline's earlier research and development expenditures for cefazolin); since 1970, $9,929,007 on Keflin promotion; and $22,277,561 on Keflex promotion since 1970. SmithKline has spent more than $20,000,000 on Ancef promotion and development, including its expenses for de-

tail men; Lilly spent $2,361,000 on Kefzol's development. Plaintiff's total promotional expenditures for Ancef amount to $13,112,000 to date; from 1973 through 1975 alone, SmithKline spent $8,670,000 in detailing expenditures for Ancef. [Step, Tr. 1028-1035; See Step, Dep. 57; See Findings of Fact ¶¶ 16-18; Additional Responses of Eli Lilly & Company to Interrogatories of Plaintiff SmithKline Corporation—First Set, Nos. 49-50, 52, 54; see Finding of Fact ¶ 68; Exhibit P-5, Attachment "B".]

104. The Revised CSP calculates the rebate on one product in substantial part on the basis of sales of two other products. There is no way a competitor of Lilly can calculate a price on a product that competes with one Lilly product, unless the competitor knows the amount of the rebates the hospital will receive on the other two Lilly products. This is not public information. Lilly instructs its salesmen to be secretive about rebates. Often the hospital is uncertain what its Lilly rebate percentage will be until Lilly tells it, which does not occur until after the close of the quarter, when aggregate quarterly purchases are known. [van Roden, Tr. 40, 68-69; Exhibits P-171; Memorandum to the Court prepared by Charles H. Curl, Jr.; Lochridge, Tr. 417-419; Southard deposition at 19; P-78.]

105. If SmithKline could obtain the necessary information to calculate the rebate it would have to give to hospitals in order to match the rebate under the Revised CSP, it would find that such compensatory rebates would be in the order of 16% for average accounts and 35% or more for large accounts. [Lochridge, Tr. 394-413; P-171; P-172; P-173; Memorandum to the Court Prepared by Charles H. Curl, Jr.]

106. The rebates under the Revised CSP are payable in Lilly merchandise and are actually paid largely in Keflin and Keflex. By reason of the nature of the products, as well as Lilly's integration of manufacturing processes, Lilly's cost of goods is very substantially lower on Keflin and Keflex than on Kefzol, which means that any manufacturer with a product in competition with Kefzol, or with any other cephalosporin having a higher cost than Keflin and Keflex, will be at an automatic and substantial competitive disadvantage. [P-173; Lilly's Answers to Plaintiff's Interrogatories No. 42, 43, 45; Responses of Eli Lilly & Company to Interrogatories of Plaintiff SmithKline Corporation—Second Set 62(a), 76.]

107. The competitive strength of the Revised CSP is a function of Lilly's dominance of the cephalosporin market. In the absence of the Revised CSP, and using SmithKline's cost of goods for its pharmaceutical division and Lilly's expense averages, the plaintiff has a pretax return on Ancef sales of 4.6%; the defendant's return on sales of Kefzol is 17.6%. A 4.6% return on sales does not warrant continued marketing of cefazolin by SmithKline without the potential for significant improvement in profitability. SmithKline and Lilly have gross margins of 47.5% and 55% respectively on their sales of cefazolin. [Exhibit P-172, at 1.]

108. Lilly's ability to offer the bonus and volume rebates under the Revised CSP is a function, not of its lower production costs, but, instead, the result of Lilly's ability to recoup the resultant decline in Kefzol profits through its large profit margins on Keflin and Keflex. [See P-172 at 3; P-173 at 1-2.]

109. If SmithKline remained in the cephalosporin market long enough to achieve Lilly's cost ratio on cefazolin, the plaintiff's return on sales would be 8.5% pretax, a suffi-

cient return on sales to warrant remaining in the market. However, since the adoption of the Revised CSP, the payment of rebates constitutes a significant cost in marketing Ancef. When the effect of the rebates SmithKline would have to give on Ancef in order to compete effectively with Lilly's Revised CSP is taken into consideration, SmithKline's profitability disappears, *even if SmithKline were able to reduce its costs of goods to Lilly's level.* Using SmithKline's actual cost of goods, and considering the rebates plaintiff must offer in order to compete with the Revised CSP, SmithKline receives a negative return on Ancef sales to average hospital accounts (–10.2%) and to large accounts (–3.4%). Even when Lilly's cost of goods is used in calculating the impact of the Revised CSP on SmithKline's profitability, the plaintiff receives a negative return on Ancef sales to large accounts (–2.7%) and a 4.0% return on sales to average hospital accounts. A 4.0% return on sales would not represent that major sales opportunity, which would warrant retaining salesmen and promoting Ancef. Without promotion Ancef's sales volume would quickly decline and approach a miniscule level. The effect of the Revised CSP, therefore, is to destroy SmithKline's ability to compete effectively for cefazolin market share. As long as the Revised CSP is in effect, SmithKline can never compete successfully for the larger accounts without extraordinarily high rebates. Without the sales generated by the larger accounts, SmithKline would not achieve sufficient volume (and therefore accumulated volume) to reduce product costs to an adequate level. Therefore, it could not remain in the market, even for the smaller accounts. [Exhibit P-172; Step, Dep. at 34-35, 57-58; Exhibit P-173; Memorandum to the Court Prepared by Charles H. Curl, Jr.]

110. The rebates paid in Lilly cephalosporins are added to the base for calculation of future rebates. Thus, the re-

bates on Lilly's 90% share of the cephalosporin market preempt the 10% share otherwise available for competitors. [The first sentence is admitted by Lilly in its proposed final pretrial order; Step deposition at 14.]

111. There is nothing in the design of the Revised CSP to prevent Lilly from (a) adding more Lilly antibiotics or other Lilly products to the base for calculation of the bonus rebate, or (b) increasing the bonus rebate percentage above the present level of 3%. [Step deposition at 42; P-74; P-76.]

112. The Revised CSP's rebate system, providing for bonus rebates upon the purchase of three of Lilly's five cephalosporin products, was a new marketing technique never before used by Lilly or any of its competitors. [Hutchinson, Dep. 37-38; Step, Dep. 11-12.]

113. With Lilly's share of the market, use of the Revised CSP constitutes the willful maintenance of monopolistic power which is not based on growth or development as a consequence of a superior product, business acumen or historic accident.

114. By reason of Lilly's monopoly power and dominance, the Revised CSP enabled Lilly to control price in the cephalosporin market.

115. The Revised CSP was designed to exclude competition in the cephalosporin market and would have eventually succeeded in the exclusion of competition, namely SmithKline, from the marketplace.

116. The Revised CSP significantly deters competition from any who would be entering the market, particularly when that entry is with a major single line. [Exhibit P-83; van Roden, Tr. 40-41.]

117. Lilly initiated the Revised CSP with the specific intention of driving SmithKline out of the cephalosporin marketplace.

J. Damage And Threatened Damage To SmithKline

118. Many hospitals that used to buy Ancef exclusively or in part have switched to Kefzol because of the Revised CSP. Many hospitals have awarded bids to Kefzol in order to avoid losing the bonus rebate on Keflin and Keflex, although the actual bid on Ancef (when bid on a one-on-one basis) was lower. Many hospitals that would otherwise have purchased Ancef have decided to purchase Kefzol because of the Revised CSP. [Ex. P-9; Ex. P-10; P-85; P-86; P-144 at 32-33; P-129 at 33-34, 60-61; P-154 at 37; P-105 at 26-27, 51-52; van Roden, Tr. 44-45; P-164 at 26-27; P-114 at 73-74; DiMatteo, Tr. 301-321; 334-355; Ex. P-15; P-16; P-18; P-19; P92; P-81; P-84; P-87; P-88; P-89; P-101; P-102; Shotwell, Tr. 798-802, 882-883, 889-891, 971-972; P-92; P-181-P-186.]

119. If SmithKline were able to devise a method of meeting the bonus rebate on Keflin and Keflex by increasing the rebate on Ancef, the cost of the increased rebate on Ancef would reduce SmithKline's margin on that product to the point where promoting the product through detail men would no longer be economical. If SmithKline discontinued product promotion, Ancef would no longer offer significant, if any, competition to Kefzol and Keflin. [Finding of Fact ¶ 17; P-171; P-172; P-173; P-8; Lochridge, Tr. 368-401, 404-442; Step, deposition at 34-35, 54-55; van Roden, Tr. 32-33, 39-41, 46-47.]

120. When SmithKline loses a dollar of sales of Ancef, the offsetting cost savings do not exceed 54 cents. [Ex. P-8.]

121. Since Lilly initiated its Revised Cephalosporin Savings Plan on or about April 1, 1975, SmithKline has lost sales of its brand of cefazolin, Ancef, to about 137 hospitals in the amount of $1.5 million due to the Revised Cephalosporin Savings Plan. [Exhibit P-9; P-10; P-172; P-181-P-186.]

122. Increasing substitution of Ancef (promoted as a Keflin substitute) or Kefzol for Keflin, the former products having a lower cost per day of therapy than the latter product, would have forced a decrease in the price of Keflin absent the operation of the Revised CSP and the linkage of the profits of Keflin, Keflex and Kefzol. The hospital-consumers have been damaged by their inability to obtain lower Keflin prices which would have resulted from a one-on-one price competition between Ancef and Keflin in the absence of the Revised CSP.

123. SmithKline has failed to obtain the increased share of the cephalosporin market that it would have obtained, absent the Revised CSP, through replacement of Keflin and otherwise. [Exhibit P-6.]

IV. Discussion

A. Tying Arrangements

1. SmithKline's Contentions And Lilly's Response

It is undisputed that under the Revised CSP Lilly grants a 3% bonus rebate, conditioned on a hospital's purchase of established minimum quantities of each of any three of Lilly's five cephalosporin products. The precise issue for this Court is whether the Revised CSP constitutes an illegal tying arrangement in violation of sections one and three of the Sherman Act and section three of the Clayton Act.

Appendix D.

SmithKline asserts that the Revised CSP is an illegal tying scheme for the following reasons. Hospitals allegedly receive approximately the same aggregate rebate under the Revised CSP as that paid under the CSP [See Defendant's Exhibit, D-1119 at 16]. However, Lilly according to the plaintiff, now offers hospitals two overlapping methods—the base and bonus dividends—for obtaining the identical rebate offered under the old CSP. SmithKline avers that Lilly, through its bonus dividend, now conditions the payment of a substantial portion of the rebate previously available under the old CSP on a hospital's purchase of a certain minimum quantity of each of three products, Keflin, Keflex and Kefzol. Therefore, the inescapable result, according to SmithKline, is that hospitals must buy a sufficient volume of Keflin, Keflex and Kefzol in order to qualify for the bonus rebate. The plaintiff avers that the Revised CSP constitutes a tying arrangement because Lilly knew that the vast majority of hospitals could not qualify for the bonus rebate by purchasing enough Loridine or Kafocin as their third Lilly cephalosporin product; few hospitals used a sufficient amount of those particular drugs to make the required minimum purchase. Without the Revised CSP, SmithKline contends that hospitals might have purchased Ancef, sold at a cheaper unit price when bid on a one-on-one basis against Kefzol.[14] Finally, the plaintiff avers that it must compensate hospitals both for the loss of the bonus dividend and, for the possible decline in the base dividend occasioned by the decrease in the hospital's total volume of Lilly cephalosporin purchases when it buys Ancef rather than Kefzol. According to the plaintiff, the compensatory rebate necessary to offset the effects of the Revised CSP, is in the range of 16 to 35 percent on all hospital purchases of Ancef. [Findings of Fact, ¶ 105.]

[14] Plaintiff's Exhibit P-16, at 1.

Appendix D.

While recognizing that there is no *express* provision within the Revised CSP which requires a purchase of Keflin, Keflex and Kefzol in order to receive the bonus rebate, SmithKline maintains that there was no absolute tying condition in a number of earlier decided cases in this area of antitrust law. Instead, the plaintiff avers that "the common thread" in a number of tie-in cases is "the offer of an economic reward or sanction which, as a practical matter, forces the buyer to take the tied product." (Plaintiff's Reply Memorandum, 2). The upshot of SmithKline's argument is that Lilly's "economic arm-twisting"[15] is tantamount to a tying arrangement.

Lilly admits that the original CSP provided for a rebate in the form of Lilly merchandise of the hopsital's choice,[16] at a rate applied to the total number of grams of Lilly cephalosporins purchased by a particular hospital, *i.e.*, a straight volume rebate scheme. (Trial Memorandum of Eli Lilly and Company, 6). It is also conceded that at the time it introduced the Revised CSP, Lilly somewhat reduced the rebate rates applicable to a hospital's total volume purchases of Lilly cephalosporins below the percentage levels used in the original CSP. The result is that hospitals now receive a reduced volume rebate for their purchases of the same total grammage of Lilly cephalosporins. At the same time, Lilly's Revised CSP provides for a new 3% bonus rebate. (Trial Memorandum of Eli Lilly and Company, 6-7). However, Lilly asserts that the Revised CSP, on its face, and in practice, does not: (1) require any hospital to purchase any Lilly cephalosporin in order to obtain any other Lilly cephalosporin; (2) require any hospital to refrain from purchasing any other manufacturers' cephalosporins in order to

[15] Plaintiff's Reply Memorandum, 7.

[16] Certain restricted drugs were not available on a rebate basis.

obtain any Lilly cephalosporins; and (3) condition the payment of any rebate, earned on purchases of Lilly cephalosporins, upon an agreement that a hospital shall refrain from purchasing cephalosporins from another manufacturer. The defendant emphatically maintains that all of Lilly's cephalosporins are separately available for purchase by any hospital in the United States, without participation in the Revised CSP and, without purchase of any other Lilly cephalosporin or any other Lilly product. The defendant asserts that hospitals have a realistic option to separately purchase any Lilly cephalosporins and that substantial portions of Keflin and Keflex have been so purchased by hospitals not participating in the Revised CSP or in its predecessor, the CSP. Finally, the defendant contends that it does not have the requisite market power to create an illegal tie-in of Kefzol because: (1) the fact that both Keflin and Keflex are patented products merely creates a rebuttable presumption of sufficient market power to create an illegal tie-in; and (2) that such presumption is rebutted both by SmithKline's successful promotion of Ancef as a replacement for Keflin and, by the availability of other manufacturers' cephalosporin and/or anti-infective products as therapeutic substitutes for Keflin and Keflex.

The issue whether the Revised CSP constitutes an illegal tying arrangement is not without some difficulty. Both parties admit that no court has previously considered this precise arrangement. Perforce, the strength of both parties' respective arguments rests on analogies to a wide variety of antitrust and patent infringement cases.

2. Law Of Tie-ins

The parameters of illegal tying arrangements were considered by the Supreme Court in *Times-Picayune Publishing Co.* v. *United States,* 345 U.S. 594 (1953), in an opinion authored by Mr. Justice Clark. The Court reversed the district judge's finding that the defendant's contracts for sale of newspaper classified and general display advertising space violated both sections one and two of the Sherman Act. Mr. Justice Clark opined:

> The common core of the adjudicated unlawful tying arrangements is the *forced* purchase of a second distinct commodity with the desired purchase of a dominant (tying) product, resulting in economic harm to competition in the "tied" market. 345 U.S. at 614 (emphasis added).

A few years later, in *Northern Pacific Ry. Co.* v. *United States,* 356 U.S. 1, 5-6 (1958) ("Northern Pacific"), the majority of the Court upheld the district court's entry of summary judgment for the Government declaring certain of the railroad's lease and deed provisions violative of section one of the Sherman Act. Mr. Justice Black, writing for the majority, stated that a tying arrangement was "an agreement by a party to sell one product *but only on the condition* that the buyer also purchase a different (or tied) product, or at least agrees that he will not purchase that product from any other supplier." (emphasis added) In that same opinion, in an extremely important footnote, the Court added:

> of course where the buyer is free to take *either product by itself there is no tying problem even though the seller may also offer the two items at a single price* (emphasis added). 356 U.S. 6, n.4.

In its most far-reaching pronouncement on the requisite elements of proof in a tie-in case to date, *Fortner Enterprises, Inc.* v. *U.S. Steel Corporation,* 394 U.S. 495, 498 (1969) ("Fortner"), Mr. Justice Black, in an opinion for the majority, recognized that the "conduct challenged here

primarily involves a tying arrangement of the traditional kind. The Credit Corp. sold its credit *only on the condition* that petitioner purchase a certain number of prefabricated houses from the Homes Division of U.S. Steel" (emphasis added).

SmithKline rightly asserts that an illegal tie-in can be proven in the absence of an express contractual provision setting forth the terms of such a tie. The Court of Appeals for the Third Circuit recently affirmed that proposition in *Ungar* v. *Dunkin' Donuts of America, Inc.*, 531 F.2d 1211 (3d Cir. 1976) *cert. denied*, 45 U.S.L.W. 3250 (U.S. October 10, 1976) ("Dunkin' Donuts"); accord, *Advance Business Systems & Supply Co.* v. *SCM Corporation*, 415 F. 2d 55, 64 (4th Cir.) *cert. denied*, 397 U.S. 920 (1970) ("Advance Business Systems"), where the court held that an illegal tie-in "may be inferred from an extrinsic course of conduct supplementing the written contract."[17]

Judge Aldisert, writing for a unanimous panel in *Dunkin' Donuts*, set forth the elements of proof necessary to demonstrate the existence of an illegal tying arrangement in the absence of a formal agreement:

> . . . a plaintiff must establish in some other way that a tie-in was involved *and not merely the sale of two products by a single seller.* This can be done by proof that purchase of one product, the tied product, was not voluntary, i.e. by *proof of coercion.* . . . proof of a

[17] The course of conduct from which the court inferred the existence of an illegal tying arrangement in *Advance Business Systems* was the use of "persistent and deliberated misrepresentations, sabotage, and threats of cancellation" of service contracts for SCM copying machines in order to force customers to use only SCM supplies in electrostatic copying machines rented from SCM. *Advance Business Systems*, supra, 415 F.2d at 64. SmithKline does not allege that such deceptive practices were used by Lilly in order to force the purchase of Kefzol in addition to Keflin and Keflex.

> tie-in must focus on the buyer, because *a voluntary purchase of two products is simply not a tie-in.* 531 F.2d at 1224. (emphasis added).

Later, in the same opinion, Judge Aldisert further defined the evidence sufficient to establish the coercion necessary to support a finding of an illegal tying arrangement:

> *We understand the argument that proof of acceptance of a burdensome or uneconomic offer of a secondary ("tied") product is some evidence of coercion. We cannot, however, accept the proposition that such* proof, alone, would suffice to establish, prima facie, the coercion element of an illegal tie-in claim. Establishing that buyers purchase products A and B from the seller does not establish that the seller ties the sale of product A to the purchase of product B. It merely establishes that buyers purchase products A and B from the seller. 531 F.2d at 1225 (emphasis added).

From a careful reading of *Dunkin' Donuts*, and the Supreme Court decisions reviewed earlier in this opinion, SmithKline must demonstrate the following facts in order to prove that Lilly, in instituting the Revised CSP, illegally tied the sale of Keflin and Keflex to the sale of Kefzol. First, the plaintiff must prove that the defendant's conduct amounted to a refusal to sell Keflin and Keflex unless a hospital also purchased Kefzol, or some other undesired product. The court can find the existence of an illegal tie-in only if SmithKline demonstrated that Lilly refused to sell Keflin and/or Keflex separately, but only sold those desired products upon the condition that a hospital purchase one of Lilly's other cephalosporin products, and any request by the hospital for the sale of a single product would be met by a refusal to dispense any of the products. Such a scenario would be analogous to another Sherman Act violation, the concerted refusal to deal. Second, the plaintiff must

show that Lilly has sufficient economic power over the tying products, Keflin and Keflex, to appreciably restrain free competition in the market for Kefzol. And third, SmithKline must prove that a not insubstantial amount of commerce is affected by Lilly's marketing arrangement.[18]

As to the latter two issues, plaintiff has proven by overwhelming evidence that Lilly does have sufficent economic

[18] In *Dunkin' Donuts* the plaintiff withdrew a claim under section three of the Clayton Act after the parties agreed that the subject matter of the lawsuit was not within the meaning of the Clayton Act. Unlike *Dunkin' Donuts*, the actions complained of in this case fall squarely within the terms of section three of the Clayton Act and, therefore, the elements of proof of an illegal tie-in are stated in the alternative where necessary.

The standards for finding an illegal tie-in differ under the Sherman Act and under the Clayton Act. The Clayton Act is broader in scope, for in finding that the plaintiff has satisfied its burden of proof with respect to the second *or* third elements set forth in the above text, a court must find that a violation of section three of the Clayton Act has been established. In order to find that sections one and three of the Sherman Act have been violated, a plaintiff must demonstrate that the defendant has successfully obtained substantial economic power over the tying products *and* affected a not insubstantial amount of commerce through the sales at issue. The Clayton Act, unlike the Sherman Act in this context, is concerned with possible rather than actual competitive effects. Compare *Fortner,* supra, 394 U.S. at 501, 510-511, 514 n.9, with *Times-Picayune,* supra, 345 U.S. at 608-611. Judge Fortas, in his dissenting opinion in *Fortner,* asserted that the majority opinion abolished the distinction in the quantum of proof required under section 1 of the Sherman Act and section three of the Clayton Act. 394 U.S. at 521 (Fortas, J., dissenting).

Despite the fact that there is some difference in the elements of proof required to establish a Clayton or Sherman Act violation, the first element of proof appearing in the text, the nature of the agreement between the seller and the buyer, must be demonstrated under either Act in order to establish an illegal tie-in. My determination that SmithKline has not established an illegal tie-in is equally applicable to its claim under the Clayton and the Sherman Acts.

power over the tying products, Keflin and Keflex, to appreciably restrain free competition in the market for cephalospirins. And, similarly, it has been shown that a very substantial amount of commerce is affected by the Revised CSP at issue in this case.

3. The Definition Of Tie-ins As Defined By The Third Circuit:

After the evidence had been presented and all briefs filed, the Court of Appeals for the Third Circuit filed an opinion in *Dunkin' Donuts, supra,* which I deem to be now controlling as to any decision which I must make on this tie-in issue. Prior to *Dunkin' Donuts* there was room for argument that some forms of coercion, short of an absolute requirement that one purchase the tying product to get the tied product, could constitute an illegal tie-in agreement. Cf. *Advance Business Systems, supra,* where Judge Sobeloff writing for the court, held that:

> Acquiescence in the burdensome term by an appreciable number of customers gives rise to an inference that SCM had some power over buyers' in the market. Consequently, the tying arrangement is per se illegal under section 1 of the Sherman Act. 415 F.2d at 69.

Of course the question is always open whether or not *Dunkin' Donuts* should be limited merely to its facts—that is a class action in which a franchisee sues a franchisor claiming illegal tying arrangements.[19] However, the prin-

[19] I am fully cognizant of the different circumstances which generated *Dunkin' Donuts* and the factual matrix of this case, but these differences do not seem to be controlling. *Dunkin' Donuts* was a § 1292 interlocutory appeal from the district court's certification of a plaintiff class. The plaintiffs challenged alleged tie-in sales made in violation of section 1 of the Sherman Act.

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ciples announced in *Dunkin' Donuts* are stated so categorically, that the Court seems to be giving an authoritative definition as to what constitutes an illegal tie-in, in this circuit, under any of the relevant anti-trust provisions. If I have read *Dunkin' Donuts* properly, SmithKline has failed to meet its burden of proof in accordance with the standards set forth therein because, in the words of Judge Aldisert:

> It is only when the buyers' freedom to choose the given product is restricted that the tie-in doctrine comes into play: so long as "the buyer is free to take either product by itself there is no tie-in problem." 531 F.2d at 1226.

From an abstract perspective, if one disregards the economics of the market place, hospital pharmacists had

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The consolidated actions were brought by franchisees against their franchisor, Dunkin' Donuts of America, Inc. The court held that class certification was invalid; each franchisee was required to demonstrate that he was coerced individually to accept the alleged tie-in, so that common issues of law or fact did not predominate.

In footnote 7a to the opinion, Judge Aldisert recognized the distinction between an action, whether private or governmental, brought by a franchisee against its franchisor, and an action between a franchisor and a competing supplier. The court expressly refrained from commenting on the latter fact situation. The nature of this suit between SmithKline and Lilly, one brought by a seller against its competitor, necessitated a different mode of proof than that appropriate in an action between a franchisee and a franchisor. However, a difference in the modes of proof does not change the essential elements of a tying arrangement, the first of which is the forced purchase of a secondary, tied, product in order to acquire the desired, tying, product. The delineation of the coercion element in the tie-in cases appearing in *Dunkin' Donuts* is persuasive authority for any decision in this case, and has broad ramifications beyond the adjudication of the franchisee dispute. See 531 F.2d at 1221, n. 7a.

the "freedom to choose" any of Lilly's products without having to buy a tied product; thus they were "free to take either product by itself." *Id.* The economics of the marketplace precluded that freedom of choice for most hospitals; such a freedom of choice, more prevalent in theory than in operational reality, is enough to circumvent the tie-in prohibitions of the relevant antitrust laws.

B. Monopolization

SmithKline has charged Lilly with monopolization of the non-profit hospital market for cephalosporins in violation of section two of the Sherman Act. This issue is separate and distinct from the issue whether Lilly's practices constitute illegal tying arrangements. Justice Black cautioned in *Fortner Enterprises Inc.* v. *U.S. Steel Corp., supra,* 394 U.S. at 500, that the inability of a plaintiff to satisfy the standards necessary to bring into play the doctrine of *per se* illegality:

> by no means implied that . . . [such inability] would be fatal to a plaintiff's case. A plaintiff can still prevail on the merits whenever he can prove, on the basis of a more thorough examination of the purposes and effects of the practices involved, that the general standards of the Sherman Act have been violated.

Section two of the Sherman Act prohibits monopolization accomplished by actions which are not embraced within the restraints of trade enumerated in section one of that statute. *Standard Oil Co. of New Jersey* v. *U.S.,* 221 U.S. 1, 61 (1911). The offense of monopolization is: "(1) the possession of monopoly power in the relevant market and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen or

historic accident." *United States* v. *Grinnell Corp.*, 389 U.S. 563, 570-571 (1966) ("Grinnell").[20] Monopoly power is the ability to "control prices or exclude competition." *United States* v. *E. I. duPont de Nemours & Co.*, 351 U.S. 377, 391 (1956) ("Cellophane Case"). SmithKline, as plaintiff, has the burden to show that the defendant possesses monopoly power in the relevant market, which consists of a geographic as well as a product market. *Cellophane Case, supra,* 351 U.S. at 381. In defining the relevant market "the varying circumstances of each case determine the result." *Cellophane Case, supra,* 351 U.S. at 395; *Telex* v. *IBM,* 510 F.2d 894 (10th Cir. 1975) ("Telex").

The parties have stipulated that the relevant geographic market is the United States, and that the relevant sales are those made to nonprofit hospitals. The initial question for decision, then, in determining Lilly's liability or lack thereof under section two of the Sherman Act, has to be what is the appropriate product market. Is the product, as plaintiff contends, only cephalosporins, or is it, as defendant maintains at its broadest challenge, all anti-infective drugs? The legal definition of the product market determines the ultimate result in this case.

1. Relevant Product Market

An inquiry as to the metes and bounds of the relevant product market is necessitated by the phrase "any part

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[20] The Court in *Grinnell* stated:

> We see no reason to differentiate between "line" of commerce in the context of [§ 7 of] the Clayton Act and "part" of commerce for purposes of [§ 2 of] the Sherman Act. 384 U.S. at 573.

Therefore, in discussing the legal standards which control the determination of product market, both section two Sherman Act and section seven Clayton Act cases will be cited.

of the trade or commerce" in section two of the Sherman Act. *Philadelphia World Hockey Club, Inc.* v. *Philadelphia Hockey Club, Inc.,* 351 F. Supp. 462, 500 (E.D. Pa. 1974). The determination of the relevant product market is an essential precursor to any finding concerning Lilly's power to control prices or to exclude competition, that is, whether Lilly had monopoly power. *Cellophane Case, supra,* 351 U.S. at 391; *Grinnell, supra,* 384 U.S. at 571.

The defendant correctly points out that the Supreme Court's decision in the *Cellophane Case* is the cornerstone in defining the relevant product market. In that case, the Supreme Court stated:

> *The varying circumstances of each case determine the result.* In considering what is the relevant market for determining the control of price and competition, no more definite rule can be declared than that commodities reasonably interchangeable by consumers for the same purposes make up that "part of the trade or commerce", monopolization of which may be illegal. (emphasis added). 351 U.S. at 395.

Later in the *Cellophane Case* the Court also emphasized:

> An element for consideration as to cross-elasticity of demand between products is the responsiveness of the sales of one product to price changes of the other. 351 U.S. at 400.

The Supreme Court, in *Brown Shoe Company* v. *United States,* 370 U.S. 294, 325 (1962) ("Brown Shoe"), reaffirmed the importance of evaluating both reasonable interchangeability of use and cross-elasticity of demand in any delineation of the relevant product market for antitrust purposes. However, the late Chief Justice Warren also explained:

> The outer boundaries of a product market are determined by the reasonable interchangeability of use

> or the cross-elasticity of demand between the product itself and substitutes for it. *However, within this broad market, well-defined submarkets may exist which, in themselves, constitute product markets for antitrust purposes.* The boundaries of such a submarket may be determined by examining such practical indicia as industry or public recognition of the submarket as a separate economic entity, the product's peculiar characteristics and uses, unique production facilities, distinct customers, distinct prices, sensitivity to price changes, and specialized vendors (emphasis added; footnotes and citations omitted).

a. Contentions Of The Parties:

SmithKline urges that the relevant product market is solely the cephalosporin family of antibiotic (anti-infective) drugs. Cephalosporins, it is said, have different spectrums of activity and toxicity when compared with other antibiotics and, thus, generally are not interchangeable with antibiotics outside of the cephalosporin family. In addition, plaintiff rejects inclusion of all anti-infectives in the relevant product market because Keflin, according to SmithKline, is virtually immune to any price competition from non-cephalosporin drugs. SmithKline asserts that price competition or cross-elasticity of demand is evident only among the cephalosporins; other effective price competition will arise only when, or if, a new and better generation of antibiotics is developed by some drug manufacturer.

Lilly argues that the relevant product market for antitrust purposes should be all anti-infective (antibiotic) drugs. The defendant asserts that both the original and the Revised CSP were instituted in order to make Lilly cephalosporins more competitive with other anti-infective drugs, and to increase their sales in the entire anti-infective

market. In support of its position, Lilly argues that each infectious disease or condition treatable with a cephalosporin is also successfully treatable with at least one other anti-infective drug. In addition, Lilly maintains that the increasing cost-consciousness of hospital pharmacists and hospital-based physicians to the price of cephalosporins, causes doctors to substitute less expenive anti-infectives for the cephalosporins. Finally, Lilly proffers the testimony of Dr. J. Fred Weston, to demonstrate price sensitivity between cephalosporins and other anti-infective drugs. Dr. Weston posits three groups of anti-infective drugs which currently compete in the human ethical pharmaceutical industry. SmithKline, according to the defendant, asked the Court to accept substantial fungibility and identity of price as the tests for determining the relevant product market—standards rejected by the Supreme Court in the *Cellophane Case, supra,* 351 U.S. at 394.

b. Standard For Defining The Relevant Product Market: Therapeutic Capability, Specialist Preference And General Physician, Hospital And Consumer Practice.

It is appropriate to repeat the late Chief Justice Warren's admonition that within a broad product market:

> . . . well-defined submarkets may exist which constitute product markets for antitrust purposes.

Brown Shoe, supra, 370 U.S. at 325. In this case, in determining the relevant product market, we must ascertain whether there is a "well-defined submarket" by identifying the "practical indicia" of the hospital industry's purchasing practices. 370 U.S. at 325. The test is how the hospitals generally perform and not how they *should* perform. I recognize that from a pharmacological standpoint, for the treatment of certain specific infections, there are differences in the therapeutic capability of cephalosporins when com-

pared with other antibotics. These divergent therapeutic indications are best stated by Dr. Kaye (Plaintiff's Exhibit P-178). Despite the fact that cephalosporins are "semi-synthetic antibacterial agents that are closely related chemically to the penicillins",[21] for certain conditions the cephalosporins and the penicillins are equally effective, for other conditions the cephalosporins are more effective. Generally, on an overall basis, the cephalosporins are probably more effective for more conditions than penicillin or other antibiotics.[22] Thus, there is interchangeability for the treatment of some illnesses but for other illnesses there is no equal interchangeability.

To establish the interchangeability necessary for the broadest definition of the product market—that is, to designate all anti-infective drugs as the proper product market rather than merely cephalosporins—Lilly presented several high-powered specialists who are nationally renowned for their sophisticated professional judgments and skills in reducing hospital pharmaceutical costs, so that the least expensive drug is utilized instead of the more expensive no more effective drug. Lilly's impressive array of witnesses is as follows:

1. Dr. Holloway is chief of the Infectious Disease Section of the Department of Medicine at the Wilming-

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[21] See Text, supra, 2, n.5.

[22] Cephalosporins, unlike the penicillins, are effective in treating gram-negative as well as gram-positive infections (Defendant's Exhibit D-102(a); Plaintiff's Exhibits P-178, P-189). Cephalosporins, unlike the tetracyclines, chlorampenicol and erythromycin-like drugs, kill bacteria rather than merely inhibit its growth. Cephalosporins are relatively non-or-less toxic than the aminoglycosides (Plaintiff's Exhibit P-178, at 3-4). Finally, cephalosporins, particularly Keflin, are superior products for providing the broad coverage against bacteria which is deemed as essential in a program of therapy implemented by treating physicians (See Tr. 1074).

ton Medical Center; Director of the Infectious Disease Research Laboratory at the same institution; Clinical Associate Professor of Medicine at Jefferson Hospital; and, the author of more than seventy-five articles and a book on antibiotic selection.

2. Dr. Kass is the William Ellery Chaning Professor of Medicine at the Harvard Medical School; the Director of both the Chaning Laboratory at Harvard and the Department of Medical Microbiology at Boston City Hospital; the past President of the Infectious Diseases Society of America; and, the current Editor of the Journal of Infectious Diseases.

3. Mr. Nudelman is presently employed as Assistant Vice President for Patient Care by the Group Health Cooperative for Puget Sound, while serving both as Chairman of the Washington State Board of Pharmacy and as Assistant Clinical Professor of Pharmacy at the University of Washington. Despite his crowded schedule, Mr. Nudelman also serves as an Instructor in Clinical and Hospital Pharmacy for Washington State University College of Pharmacy and has published in his field. Finally, Mr. Nudelman is a consultant to the Federal Trade Commission on drug price advertising.

4. Dr. Scheife, in addition to serving as the only clinical pharmacist at the Tuft-New England Medical Center, is also: Assistant Clinical Professor of Pharmacy at the Massachusetts College of Pharmacy; Assistant Clinical Professor of Clinical Pharmacy at Northeastern University; and a Clinical Preceptor in Clinical Pharmacology at the Tufts Medical School. Dr. Schiefe has also written six articles.

The credentials of these scholars are impeccable, but they are not typical representatives of the persons ordering or prescribing drugs for the nonprofit hospital industry. While we all admired the extraordinary speed of the gold medalist who won the 400 meter relay for the United States in Montreal in July, it would be foolish to assume that his speed, finesse, skills and physical condition constitutes the norm of agility and talent of the average American his age. The blunt truth is that most physicians and hospital administrators, in their daily practice, are no closer to the cost-benefit analysis advocated by Harvard Medical School Professor Dr. Kass, than are little leaguers equal to the performance of the National League All-Star baseball team. For example, on direct examination, Dr. Kass was asked:

> Q. Dr. Kass, could you tell the Court the relative rate of usage of Cephalosporins at Boston City Hospital compared with the rate of usage in other Boston hospitals?
>
> A. Yes. Compared to one of our major sister institutions, which also is one of the teaching hospitals in the Harvard group, we use about one-fourth as much Cephalosporins per capita as does our sister hospital.
>
> Q. What conclusions do you draw from that fact?
>
> A. Well, there are many, but we have been able to convince the administration of our hospitals that we save them a great deal of money, and we don't believe any patients are being mistreated.
>
> By the Court:
>
> Q. Relative to your sister hospital, which I won't ask you to name—
>
> A. Thank you.
>
> Q. —for the moment, what is its record in terms of average number of days per patient in the hospital, compared with yours?

> A. It is about the same. (Tr. 819-820).

Dr. Kass' testimony demonstrates that his message has not even been implemented just across the Charles River by a sister hospital, also affiliated with the Harvard Medical School. Just as Dr. Kass has not been able to effect cost-conscious drug therapy at other hospitals affiliated with Harvard, so, too, the concept has not had a significant impact across the Nation.

Perhaps in the long run there will be some massive receptivity of the rational theory promulgated by Professor Dr. Kass and Mr. Philip F. Nudelman, among others. Perhaps in the distant future there will be that massive, rational cost-consciousness which would dramatically alter the prescribing habits of physicians.[23] However, the defi-

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[23] Dr. Holloway, in the course of his testimony, acknowledged that his efforts to persuade physicians, of the merits of rational, cost-conscious drug therapy, were directed toward medical students. He stated that by the time physicians complete medical school they have developed poor prescribing habits with the result that doctors prefer to prescribe "new more exciting antibiotics . . . in their training period, cost never sinks through to them." (Tr. 847-848). Dr. Holloway also acknowledged that cephalosporin usage was a lower proportion (20%) of the drug budget of teaching hospitals, as compared with community hospitals (35%). However, teaching hospitals constitute less than ten percent of the 6,000 hospitals with which the Court is concerned in this case (Tr. 857-858).

Mr. Step, President of the Pharmaceutical Division of Eli Lilly and Company acknowledged that there is a vast disparity between the counseling given by experts in the medical field and the practical approach of physicians. One of Lilly's witnesses, Mr. Nudelman, urged that rational drug therapy necessitated the sensitivity testing of patients prior to treatment with any antibiotic. Mr. Nudelman argued that the use of cephalosporins as preventative therapy, prior to isolation of a particular infection in a patient, should be discouraged. Mr. Step succinctly stated

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nition of the relevant product market today cannot be cast on the hope that the protegees of Mr. Nudelman and Dr. Kass will someday be the dominant force in prescribing drugs in American hospitals. I must make my decision on the basis of consumer-physician practices today, whether their practices are rational, irrational, or unnecessarily costly.

c. Sensitivity To Price Changes.

Another indication that certain products should be included within the same relevant product market is how the price of one product effects the sales volume and, ultimately, the price charged for a second product. Dr. Fred J. Weston grouped certain anti-infective drugs into three categories based on their date of introduction and their sales volume. Dividing anti-infective drugs into three successive generations, groups I, II and III, Dr. Weston hoped to demonstrate price responsiveness and cross-elasticity of demand among the generations. Group III included the cephalosporins (except Ancef and Kefzol in some exhibits). Dr. Weston was concerned with two competitive phenomena: (1) the development of a fourth

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the reaction of practicing physicians to the suggestions of specialists such as Mr. Nudelman:

> There are those physicians who think that it is very poor medicine, that you ought not to treat until you've isolated an infection. There are those physicians who say that's great for professors, but I treat people. . . . I've got a patient that is sick . . . I'm worried about that patient and I would rather have given him a couple days of broad spectrum antibiotics that he didn't need than have not given him one that he did. [Tr. 68-69.]

Mr. Step, when questioned further, testified that Keflin was a very good drug for preventative therapy prior to the isolation of an infection—a practice adopted by the majority of physicians, despite the counsel of "eminent critics." [Step, dep. 69.]

generation of anti-infectives, interchangeable with those in group III; and (2) price and quantity responsiveness among the current generations of anti-infective drugs. Dr. Weston posited that the introduction of a new generation of anti-infectives such as group III would cause a sales decline in group II, with the result that manufacturers would be forced to cut prices in group II in an effort to maintain sales volume. Such a price cut would cause an upswing in the sales of group II, slowing up group III's sales growth, and eventually forcing price cuts in the latter in order to maintain sales volume. According to Lilly, no fourth generation of new and better antibiotics has appeared on the scene to provide adequate price competition for Keflin; it is also apparent, contrary to Dr. Weston's predictions, that there has been no price cut in Keflin in order to maintain sales volume in the face of a decline in the price of group II products. Mr. Step, President of the Pharmaceutical Division of Eli Lilly and Company, outlined the nature of price competition in the broader anti-infective market:

> Well, historically, breakthroughs in the anti-infective market or the breakthrough product has been characterized at its launch by a relatively quick up-take at an albeit reasonably high price. It has been the historical characteristic of that market that within the relatively short period of time competition has forced that relatively high price down rather sharply . . . over a period of five to ten years most antibiotics undergo an erosion of price of the order of 100%. In other words, five to ten years after introduction they sell at half the price that they sold at the time of introduction, and this has been true over a whole for range of drugs including the penicillins, chloramphenicol, tetracyclines, tetramycins, ampicillins, really all of them. (Tr. 1042-1043).

No anti-infective has appeared on the scene which is capable of depressing the price of Keflin other than cefazolin, which is unable to have such an effect as long as the Revised CSP remains operative. The fact that Keflin is not yet subject to price erosion as a result of downward price adjustments in group II anti-infectives is evident from Mr. Step's statement in response to a question from SmithKline's counsel:

> Q. Now, you spoke about the typical price erosions in antibiotics whereby the prices eroded about 50% in the first 10 years?
>
> A. Yes, sir.
>
> Q. Has such an erosion occurred in the price of Keflin?
>
> A. No, sir, it has not. (Tr. 1062).

Apparently, Keflin's price performance is atypical of the remainder of the anti-infective market; such evidence militates against inclusion of Keflin in the broad anti-infective market.

On the basis of the record in this case, there is no ambit of discretion for any rational conclusion other than that cephalosporins *per se* constitute the relevant product market.[24]

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[24] In an effort to convince the Court that the relevant product market is the market for anti-infective drugs, Lilly, in its Post-Trial Memorandum, includes numerous references to SmithKline's internal marketing reports, wherein plaintiff's employees make specific mention of the anti-infective drug market. However, upon careful examination of Lilly's internal marketing documents, the Court is singularly impressed with the untold references made to the cephalosporin and/or cefazolin market, without any mention of a broader anti-infective market. Surely Lilly does not contend that reference to either the broad or the narrow product market in an internal marketing analysis is an admission of the relevant product market for antitrust purposes. The Court must determine the relevant market in light of all the evidence produced at trial.

2. Monopoly Power

Consistent with the standards previously noted, Lilly would be guilty of the offense of monopolization only if: (1) it possesses monopoly power in the cephalosporin product market; and (2) it has engaged in the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident. See *Grinnell, supra,* 389 U.S. at 570-571. A court is permitted to infer monopoly power from a company's "predominant share of the market." *Grinnell, supra,* 384 U.S. at 571.

It is indisputable that Lilly has monopoly power in the nonprofit hospital market for cephalosporins. Until the end of 1973, Lilly commanded 100% of the cephalosporin market. SmithKline, in late 1973, made Ancef available for use and attracted 1.5% of the cephalosporin business, with Lilly retaining 98.5% of the market. As late as the end of 1974, Lilly still controlled 89.8% of the relevant product market. In contrast, SmithKline's sales accounted for 8.5% of the cephalosporin market, whereas Bristol and Squibb held, respectively, 1.5% and 0.3% of the market. A breakdown by company of the total cephalosporin dollar sales from 1970 through 1975 is also indicative of Lilly's clear monopoly power. The dollar sales of the respective companies is as follows:

Lilly	$519,730,000
SmithKline	17,264,000
Bristol	3,631,000
Squibb	642,000

[See Exhibit P-170, Table VII.] In 1974 alone, hospitals invested more than $123,000,000 in cephalosporin products, over $111,000,000 of which went to Lilly. [Exhibit P-170, Table VIII.] Having determined that Lilly possesses monopoly power, the remaining issue is: Has Lilly mis-

used its monopoly power or willfully maintained that power through the institution and operation of the Revised CSP, and thus monopolized in violation of section two of the Sherman Act?

3. Willful Maintenance Of Monopoly Power

Commission of the offense of monopolization involves more than "extraordinary commercial success." The thrust of section two of the Sherman Act is the prohibition of the use of monopoly power, *i.e.*, the "use of means" which make it "impossible for other persons to engage in fair competition." *Cellophane Case, supra,* 351 U.S. at 390. The Sherman Act is necessarily broad in its text and interpretation to allow the courts to evaluate the nature and character of new and changing patterns of product distribution that have been tried since the Act's passage. *Cellophane Case, supra,* 351 U.S. at 385-386. Of course, the antitrust laws were designed to preclude the classic flagrant examples of monopolization, as well as the sophisticated schemes whose anti-competitive impact would be just as destructive of competition as those methods which had long since been outlawed. Courts necessarily are concerned with the use of monopoly power, for "If monopoly power can be used to begat monopoly power, the Act [Sherman Act] becomes a feeble instrument indeed. . . ." *United States* v. *Griffith,* 334 U.S. 100, 108 (1948) ("Griffith").

In *United States* v. *Griffith, supra,* the Supreme Court determined that the use of a movie theater circuit's buying power by owners who possessed monopoly power in some towns and not in others was violative of section two of the Sherman Act. Although large-scale buying was not considered an undue restraint of trade in violation of section one of the Sherman Act, the Supreme Court, in an opinion by

Justice Douglas, determined that large-scale buying:

> May not, however, be used to monopolize or to attempt to monopolize interstate trade or commerce. Nor . . . may it be used to stifle competition by denying competitors less favorably situated access to the market. 334 U.S. at 108.

Likewise, marketing or selling power may not be used to monopolize or to deny "competitors less favorably situated access to the market" for cephalosporins or to any significant portion thereof. *Id.*

After examination of the details of any particular marketing scheme, the primary concern of a district court is whether there is sufficient "injury to competition in the marketplace" to warrant a finding of monopolization. See *Coleman Motor Co.* v. *Chrysler Corp.,* 525 F.2d 1338, 1346 (3d Cir. 1975) ("Coleman Motor Co.").

The touchstone for determining whether Lilly is guilty of the offense of monopolization is not the fact that Lilly originally obtained its monopoly power lawfully—through bona fide patents. The Supreme Court, several years prior to the institution of this lawsuit ruled that:

> The use of monopoly power, *however lawfully acquired,* to foreclose competition, to gain a competitive advantage, or to destroy a competitor, is unlawful (emphasis added; citation omitted).

Griffith, supra, 334 U.S. at 107. Clearly the grant of United States patents on Keflin and Keflex does not immunize Lilly from the impact of the antitrust laws if it misuses its monopoly power. See *United States* v. *United Shoe Machinery Corp.,* 110 F. Supp. 295 (D. Mass.) *aff'd per curiam* 347 U.S. 521 (1954) ("United Shoe"), where Judge Wyzanski held that the defendant, despite its patents, had violated section two of the Sherman Act.

After a review of the operation of the Revised CSP and its impact on SmithKline, and, more importantly, on the non-profit hospital market for cephalosporins, I find Lilly guilty of the offense of monopolization in violation of section two the Sherman Act. Lilly has used its monopoly power in Keflin and Keflex to stifle competition posed by a less favorably situated competitor (SmithKline) in the cephalosporin marketplace. While Lilly successfully escaped the *per se* liability imposed with the use of an illegal tie-in, the defendant, nevertheless, clearly abridged the provisions of section two of the Sherman Act by linking products on which it faced no competition—Keflin and Keflex—with a competitive product, Kefzol. The result was to sell all three products on a noncompetitive basis in what would have otherwise been a competitive market. [Findings of Fact ¶¶ 12, 83, 102, 104, 106-109, 121-123.]

The Supreme Court, in *United States* v. *Griffith, supra,* 334 U.S. at 108, held that the perpetrator of a section two violation need not be crass:

> in order to make his monopoly power effective in competitive situations. Though he makes no threat to withhold the business of his closed or monopoly towns unless the distributors give him the exclusive film rights in the towns where he has competitors, the effect is likely to be the same where the two are joined. When the buying power of the entire circuit is used to negotiate films for his competitive as well as his closed towns, he is using monopoly power to expand his empire.

Likewise, while Lilly makes no threat to withhold Keflin and Keflex unless the nonprofit hospitals purchase Kefzol, the effect is the same where Keflin, Keflex and Kefzol are linked through the Revised CSP. Lilly used its entire line of cephalosporin products, through the vehicle of the Revised CSP, to expand its monopoly power (in the cephalosporin market) to include a drug on which there would have been competition, cefazolin. The effect of Lilly's Revised CSP was likely to be the same as if a tie-in was used—namely, the expansion of Lilly's monopoly power into previously competitive areas of the cephalosporin market. Though it is not necessary to find specific intent in order to support a verdict of monopolization—general intent will suffice—such specific intent to monopolize has been well-demonstrated in this case. *United States* v. *Griffith, supra,* 334 U. S. at 105.

a. Operation Of The Revised CSP

When SmithKline introduced Ancef, the defendant became concerned about its future sales of Keflin. Although cefazolin costs more per gram than cephalothin, cefazolin, requiring less frequent dosage, was cheaper to administer on a daily basis. And cefazolin was approved for use in treating most of the conditions against which cephalothin was effective. Lilly was concerned that the low price of cefazolin would encourage its substitution for Keflin, *i.e.,* create a greater cross-elasticity of demand between Keflin and Ancef or Kefzol. Having a decidedly smaller profit margin on Kefzol than on Keflin, Lilly concluded that it was necessary to discourage such substitution and limit cefazolin to intramuscular usage (Keflin is administered intravenously in most cases). In adopting a marketing plan to insure Keflin's continued dominance in the cephalosporin market, Lilly made use of several valuable items of information. First, through the operation of the original CSP, Lilly was intimately familiar with hospital drug usage; that information was supplied by customers to enable Lilly to calculate its quarterly volume rebate on cephalosporin purchases. Lilly also recognized that most hospital pharmacists would purchase all of their cefazolin

requirements from one drug manufacturer. Hospitals, in order to avoid confusion among their nursing and pharmacy staffs, generally do not stock two brands of the same drug. Finally, Lilly was well aware of SmithKline's approximate cost of goods for Ancef production. Consequently, with these factors in mind, Lilly adopted the Revised CSP, a three-pronged plan designed to: (1) promote Kefzol for intramuscular and not intravenous use, so that Kefzol might serve as a substitute for Loridine, if necessary, but not for Keflin; (2) price Kefzol at the same level as the price of Ancef; (3) reduce or abolish SmithKline's share of the cephalosporin submarket by the combined use of the bonus and volume rebates on Lilly cephalosporins. Lilly's goal was to capture 75% of the cefazolin market and to retain, if not enhance, its 90% share of the cephalosporin market. By offering a three percent rebate on the purchase of certain minimum quantities of each of any three of Lilly's five cephalosporin products, necessitating in most cases the purchase of Kefzol, Lilly raised substantially the discount SmithKline would have to offer hospitals on sales of Ancef. In one instance, Lilly estimated that SmithKline would have to offer a 38% rebate on Ancef sales in order to match Lilly's combined bonus and volume rebate on Keflin, Keflex, and Kefzol. [Plaintiff's Exhibit P-76, at 9.] On the contrary, the defendant, because of its unique position—having two patented products on which it had large profit margins, control of 90% of the relevant market, a well-established reputation with physicians, twice as many sales representatives as SmithKline, and a lower cost of goods for Kefzol—was able to spread the cost of its rebates over its three products, Keflin, Keflex and Kefzol. The result was that the Revised CSP had only an eight tenths of a percent (0.8%) impact on Lilly's cephalosporin profits. [Plaintiff's Exhibit P-173, Chart 22.] Finally, Lilly's ability to finance the Revised CSP without having a severe impact on its profits

is the result, not solely of its lower cost of goods, but a function of its monopoly power. Mr. Lochridge of the Boston Consulting Group testified that the slight impact of the Revised CSP on Lilly's gross profit margin:

> is a *function of two things:* one is the fact you are spreading it over a great deal more volume in the Keflin and Keflex; and the fact that the cost of goods sold for those items is significantly less than it is for Cefazolin for Lilly. (emphasis added) [TR. 416]

Lilly's high volume sales of Keflin and Keflex is attributable only to Lilly's monopoly power, which it has clearly misused.

b. Economic Impact Of The Revised CSP On SmithKline

The economic impact of the Revised CSP on SmithKline's ability to compete in the nonprofit hospital market for cephalosporins is best stated in a Supplemental Memorandum to the Court prepared by the Boston Consulting Group. SmithKline and Lilly have gross margins of 47.5% and 55%, respectively, on their sales of cefazolin.

In the absence of the Revised CSP, using SmithKline's cost of goods for its pharmaceutical division and Lilly's expense averages, the Boston Consulting Group found that:

> SmithKline would have a pretax ROS [return on sales] of 4.6 percent, and Lilly, 17.6 percent. . . . a 4.6 percent ROS, in all likelihood, would still not be sufficient to warrant continued marketing of cefazolin by SmithKline, without the potential for significant improvement in profitability. [Exhibit P-172, at 1.]

After achieving greater experience in the manufacturing of cephalosporins, it is anticipated that SmithKline would come close to, if not achieve, Lilly's manufacturing costs for cefazolin. If SmithKline achieved Lilly's cost ratio,

the plaintiff's return on sales would be 8.5% pretax—"a sufficient return on investment to warrant staying in the business." [Exhibit P-172, at 1.] However, since the adoption of the Revised CSP, the payment of rebates constitutes a significant cost in marketing Ancef. After an examination of the compensatory rebates that SmithKline has to offer on both average and large accounts since the adoption of the Revised CSP, the Boston Consulting Group concluded that:

> When the effect of the rebates SmithKline would have to give on Ancef to compete effectively is taken into consideration, SmithKline's profitability disappears, *even if SmithKline were able to reduce its costs of goods to Lilly's levels.* The effect of the Revised CSP, therefore, is to destroy SmithKline's ability to compete effectively for cefazolin market share. As long as the revised CSP is in effect, SmithKline can never compete successfully for the larger accounts without extraordinarily high rebates. Without the sales generated by the larger accounts, SmithKline would not achieve sufficient volume (and therefore accumulated volume) to reduce product costs to an adequate level. Therefore, it could not remain in the market, even for the smaller accounts. [Plaintiff's Exhibit P-172, at 3.] (emphasis added).

Since the adoption of the Revised CSP, using SmithKline's actual cost of goods, the plaintiff receives a negative return on sales on both average (–10.2%) and large (–3.4%) accounts. Even when Lilly's cost of goods is used in calculating the impact of the Revised CSP on SmithKline's profitability, the plaintiff receives a negative return on large accounts (–2.7%) and a 4.0% return on average hospital accounts. SmithKline would be unable to compete even in the small hospital segment of the relevant

product market. One acknowledged expert in the marketing field, occupying such positions as: Manager of Market Research for Lilly International, Vice President of Marketing-Planning for Lilly International, Vice President of Marketing, Development and Planning for Lilly's Domestic Operations in 1973, and Current President of the Pharmaceutical Division of Eli Lilly and Company, is Mr. Eugene L. Step. Mr. Step was asked:

> Q. Is there any dollar rule of thumb, that either the actual or potential sales of the product at which you cut it off, don't promote it?
>
> A. I wouldn't think, we don't have a formal rule, but I wouldn't think we'd select a product for promotion unless we thought it represented a major sales opportunity.
>
> . . . .
>
> Q. Let's take anti-infectives. Would you have a feeling about what a figure might be there?
>
> . . . .
>
> A. It would be difficult for me to get interested at much *less than five* [million dollars a year]. . . . If it's smaller, it might be of interest; it was close to where you already are. If it was vastly different, that is opened up a whole new area, you might have to ask yourself, is it worth retaining salesmen. [Step, dep. 34-35.] (emphasis added).

Lilly has been in the broad anti-infective market since 1929, whereas SmithKline, prior to the introduction of the cephalosporins, had only marketed Thorazine in mental hospitals and possessed no experience in the promotion of products in an antibiotic submarket. SmithKline therefore was a relatively new entrant into a vastly different market. [See Step, dep. 57-58.] A negative return on sales of 2.7% on large accounts and a positive return of 4.0% on average

accounts, using Lilly's cost of goods as a basis, would not make it, in the words of Mr. Step, "worth retaining salesmen." [Step, dep. 35.] And, without promotion, Ancef's sales volume would quickly decline and approach a miniscule level. SmithKline would be forced to abandon the cephalosporin marketplace.

c. Impact Of The Revised CSP On The Nonprofit Hospital Market For Cephalosporins

Not only is SmithKline adversely affected by the institution of the Revised CSP, but also the consumer in the nonprofit hospital market for cephalosporins suffers from Lilly's illegal practices. Keflin, the most popular cephalosporin, has not been subject to price erosion since 1966, two years after its introduction into the marketplace. [Step, Tr. 1062.] And, as Mr. Step, President of the Pharmaceutical Division of Eli Lilly & Co. admitted:

> Now I might add that mindful we have a very, very prominent role in an antibiotic market. Mindful of the past history of price evolution in that market we have strived pretty hard to keep the Keflin price where it is. *I don't think that Keflin prices have stayed relatively constant by accident. I think a great deal of planning and selling efforts have gone into the situation that prevails today.* [Tr. 1074] (emphasis added).

Mr. Step did not specify the plans that Lilly used to maintain Keflin prices. It is obvious, however, that when Ancef was introduced into the market, Lilly was concerned that the substitution of Ancef for Keflin would have reduced the overall sales volume of its product. Lilly could have avoided erosion of its market share by cutting its prices on Keflin and Keflex in order to recoup some of its lost sales volume. This technique would have successfully assured Lilly a continued high volume of sales. Keflin is approved

for use in more indications than Ancef and, furthermore, Lilly through the years has developed consumer identification with the company and with its product. Such an approach would have resulted in lower cephalosporin prices for the hospital consumer. Instead, as Mr. Step warned, Lilly maintained its price level for Keflin by planning and adopting a rebate scheme which would force SmithKline out of the cephalosporin market; Keflin prices for 1975 and 1976 were not kept at the same level as a result of Lilly's sales effort alone. The outcome for the hospital consumer is that Keflin prices remain high. [Finding of Fact ¶ 83, 102, 122.]

In the aftermath of the elimination of SmithKline from the marketplace, Lilly could continue to charge the same, or even higher, prices for Keflin, unhampered by the possibility of attracting a new drug company into the market to share in the cephalosporin profits. This, again, would be to the detriment of the hospital consumer. No company currently manufacturing cephalosporins, other than SmithKline, is in the position to effectively compete with Lilly. [Finding of Fact ¶ 78.] The investment required to enter the cephalosporin market and to promote a product is substantial, as evidenced by SmithKline's expenditures in entering the market. [Finding of Fact ¶ 103.] SmithKline has invested $8,670,000 in detailing expenditures from 1973 through 1975 (second quarter) in the promotion of Ancef. [Exhibit P-5, Attachment "B".] Plaintiff's total promotional expenditures for Ancef amount to $13,112,000 to date. [Exhibit P-5, Attachment B.] Plaintiff's total expenditures for research, development, manufacturing and marketing for Ancef have exceeded $20,000,000. [Finding of Fact ¶ 103.] No company, with the prospect of countering the Revised CSP, whether overburdened with or free from high production costs, will enter the market to replace SmithKline. [Finding of Fact ¶¶ 103, 106, 110, 116.]

In addition to these high costs of entry, the President of Lilly's Pharmaceutical Division, Mr. Eugene L. Step, explains the difficulty of entry into the cephalosporin market:

> Historically, the great rewards in any therapeutic class, and particularly in the anti-infective areas, have accrued to that company that got there first, established a position with not only the physician but the pharmacists and all of the nurses, all of the health care professionals that support that physician. You become known as the company with the product in that area, and you become—it is difficult to dislodge a company who takes that pre-emminent [sic] position and then performs well. [Tr. 1029.]

Without the possibility of new competition for Lilly in the cephalosporin market in the *immediate future,* the hospital consumer remains subject to the defendant's pricing whims.

While, of course, there can always be some challenge on tangential or minor aspects to the reports of any expert, it should be noted that, on the basis of this record, I find the testimony and exhibits of the Boston Consulting Group basically credible and persuasive; and on those issues where there is a conflict in the testimony, I find that the Boston Consulting Group's credibility, candor and reliability outdistances the testimony of Dr. Weston by lightyears.[25] In summary, through institution of the Re-

[25] I am fully aware of Dr. Weston's reputation as a prolific writer on economic matters. In the past, some courts have found him to be "eminently qualified" and that his surveys were "fair, representative, and adequate." See *U.S.* v. *Crocker-Anglo National Bank,* 277 F.Supp. 133, 170-171 (N.D.Cal. 1967). On other occasions, agencies have rejected his core conclusions about relevant markets and prices. See *Litton Industries, Inc.,* 82 F.T.C. 793,

(footnote continued on following page)

vised CSP, Lilly has set a bargain with which SmithKline cannot compete. If plaintiff matches Lilly's rebates it certainly cannot remain in the marketplace for a long time. If, by some quirk, SmithKline continues to provide its customers with cephalosporin rebates equivalent to those provided by Lilly, then with a negative return on sales, SmithKline most certainly will have to cut back on its promotional expenditures, necessary, in the words of Lilly's Pharmaceutical Division President, to make any headway in the nonprofit hospital market for cephalosporins.[26] By eliminating aggressive promotion of Ancef as a replacement for Keflin, Lilly avoids any depression in that product's price. Ancef, less expensive to administer on a daily basis, would have, in the words of Lilly's economic expert, Dr. Weston, reduced the dollar sales' volume for Keflin. In order to recoup lost sales, Lilly would be forced to cut the price of Keflin. The result would be a reduction in the price paid by consumers for this most important cephalosporin product. Rather than the Revised CSP resulting in lower prices for hospitals, it allows Lilly to continue to extract more than the optimum market price for Keflin from the consumer. In most instances, the same rebate previously available under the old CSP, is now offered under the Revised CSP, but only upon the fulfillment of two, rather than one, conditions.[27] Hospitals,

(footnote continued from preceding page)

979, which reversed a hearing examiner who "accredited great weight" to Dr. Weston's testimony. 82 F.T.C. 888. Whatever may be his general reputation, in this instance I did not find his testimony credible as to his relevant market conclusion.

[26] Step, Dep. at 33-36.

[27] Under the Revised CSP, few hospitals received an increase in dividend rates. Defendant's Exhibit D-1119, at 16, clearly demonstrates this fact. Only 29% of the hospitals were predicted to receive an increased dividend rate, whereas 66% were expected to experience a decrease in the applicable rate. 5% of the hospitals were predicted to remain at the same dividend level.

in other words, receive little if any increase in benefits as a result of higher Keflin prices.

d. Relevance Of Telex v. IBM

In finding Lilly guilty of monopolization, I have carefully weighed the contention of defense counsel that a finding that Lilly was innocent of any wrongdoing in this case is consistent with the principles enunciated by Court of Appeals for the Tenth Circuit in *Telex* v. *International Business Machines Corp., supra.* The defendant in *Telex,* International Business Machines Corporation ("IBM"), had reduced the prices of its peripheral products and effected price reductions in its leasing plans. In addition, IBM switched from short-term leases, under which customers could return equipment upon thirty days notice, to fixed term and extended leases. Like Lilly, IBM had instituted a task force (to study the plug compatible market and to recommend plans for improvement of IBM's marketing position). In its marketing analysis, the task force concentrated on the viability of its competitors.

An important question for decision in the *Telex* case was what marketing changes a monopolist, having legally attained its position, may adopt—a question equally pertinent to my decision in this case. However, the similarity in the facts, market, and the competitive effects of IBM and Lilly's respective marketing approaches ends with the statement of the question.

One critical difference between this case and *Telex* is the Court's finding of *lack* of monopoly power by IBM in the latter decision. The Court of Appeals for the Tenth Circuit rejected the district court's finding that the relevant product market consisted of peripheral products plug compatible only with IBM's central processing units

("CPU's"). As a result of the appellate court's redefinition of the relevant product market to include peripheral products plug compatible with all manufacturers' CPU's, IBM did not have monopoly power, the threshold element in any finding of monopolization. Unless my definition of the relevant product market is rejected as clearly erroneous by the Court of Appeals for the Third Circuit, Lilly clearly has monopoly power.

The nature of the cephalosporin market and the peripheral products market (limited to those units plug compatible with IBM's equipment for sake of argument), is vastly different. The district court found that entry into the peripherals market was relatively simple and easy—the number of competitors rose from 2 or 3 in 1966 to 100 at the time of trial. *Telex, supra,* 510 F.2d at 899. In addition, among those competitors IBM had the highest costs, so that a pricing policy which provided for a return of costs plus a reasonable profit upon IBM's sales, necessarily involved a price above Telex's costs. 510 F. 2d at 926. Finally, IBM's fixed term leases, and price cuts effected thereunder, were found by the district court to be "commonplace commercial agreements" which had been utilized by IBM's competitors prior to IBM's adoption of such practices. 510 F. 2d at 920. In fact, even after IBM implemented the fixed term leases at issue in *Telex,* its lease terms were shorter than those of its competitors. None of these factors are operative in the present lawsuit.

Entry into the cephalosporin market, in contrast to the peripheral products' market, is difficult and extremely costly; the Revised CSP further exacerbates the problems for the would-be entrant [Findings of Fact, ¶¶ 103, 116.] The expense of entry is highlighted by SmithKline's cost of goods for the manufacture of cefazolin, which is sub-

stantially higher than that of Eli Lilly and Company—IBM had higher costs than Telex. [Findings of Fact, ¶¶ 70, 106]. As a result of a higher cost of goods, SmithKline's return on cefazolin sales and resultant profit margins are as much as 25% lower than Lilly's [Findings of Fact, ¶ 99]. Consequently, Lilly's choice of any price level above its cost will not necessarily cover the costs of its only true competitor, in the absence of the Revised CSP, SmithKline. This is not to say that Lilly must price its products above SmithKline's costs. However, the fact that SmithKline's costs are significantly higher than Lilly's, plus the evidence that Lilly's price (rebate) change is rooted in the linkage of the profits of several products, both patented and unpatented, makes SmithKline, unlike Telex, unable to lodge a competitive and effective response to Lilly's price alteration. When IBM changed its leases and reduced its prices Telex, after a brief setback, made comparable price adjustments, recovered and began to increase its market share. Telex, unlike SmithKline, was able to cut down its costs of production, securing substantial price reductions from its suppliers, and thereby meet the competitive threat posed by IBM's new plan and price. 510 F. 2d at 926. However, SmithKline's costs of goods for cefazolin (Ancef) will only be reduced after experience in production—a function of longevity in the marketplace. But that longevity is imperiled—even doomed—by Lilly's use of the Revised CSP. [Findings of Fact, ¶¶ 103, 106, 109, 115, 119.] With the 16 to 35% rebates SmithKline would be required to return on Ancef sales in order to match Lilly's bargain under the Revised CSP, the plaintiff in this case would not be capable of a competitive response comparable to Telex's reaction to IBM's price changes, even upon achieving the defendant's cost of goods [Findings of Fact, ¶¶ 105, 109, 119.] Thus, SmithKline and Telex were subject to entirely different market

constraints, resulting in different competitive effects, and necessitating a different legal decision in this case.

An important disparity in approach between Lilly and IBM is that IBM reduced its prices on individual products, and not on any combination of products. Furthermore, Lilly, unlike IBM, did not adopt a marketing technique already tried and tested by its competition. The Revised CSP was the first scheme of its kind in the human ethical pharmaceutical industry; the bonus rebate was a radical departure from the volume rebate scheme that had previously been instituted by both plaintiff and defendant in marketing their respective cephalosporin products.[28] Rather than adopt normal marketing devices for drug sales to nonprofit hospitals—*i.e.*, the guarantee of a certain percentage rebate on volume drug purchases, separate increases in the volume rebates granted on each drug, a decrease in price on individual products—Lilly decided to link its prized products through one pricing receptical [sic]—the Revised CSP.[29] The Revised CSP, in sum, was not

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[28] In the course of their respective depositions, Mr. W. R. Hutchinson, Executive Vice President for Lilly's Pharmaceutical Division, and Mr. E. L. Step, President of that same division, acknowledged that the Revised CSP's rebate scheme had not, to their knowledge, been used by any United States drug company (Deposition of W. R. Hutchinson, 37-38; Deposition of E. L. Step, 11-12).

[29] Lilly asserts that a monopolist, who has legally acquired its power at the outset, must have "some room to move . . . [when it] . . . sees . . . [it's] . . . market share acquired by research and technical innovations being eroded. . . ." 510 F. 2d at 927. Lilly, as indicated above, had several other competitive options which would have enabled it to compete with SmithKline for the cefazolin market without use of monopoly power. While Lilly has the right to compete, "it is at least subject to the qualification that a lawful end achieved by unlawful means is not protected from the antitrust laws." See *Coleman Motor Co., supra,* 525

(footnote continued on following page)

a marketing device "already employed by others in the market." 510 F. 2d at 926.

A different, but related, problem in the *Telex* case was the trial judge's failure to find that IBM's fixed term leases —"commonplace agreements" employed by others before IBM—were a function of IBM's use of monopoly power. Unlike IBM's leases, the Revised CSP was a marketing device dependent upon Lilly's power in the market, a scheme which could have only been utilized by a company with the requisite monopoly power [Findings of Fact ¶¶ 107-108, 113-114.]

Finally, the Court of Appeals for the Tenth Circuit was singularly impressed with the fact that the price competition between IBM and Telex resulted in "better products and lower prices." 510 F. 2d at 926. Later in the same opinion, the Court of Appeals remarked that:

> The record shows, during the period under consideration that the parties and others in the market produced more advanced products better suited to the needs of the customers at lower prices. *Id.*

The Revised CSP has eliminated price competition. Prior to the institution of the Revised CSP, when price competition was allowed to occur in the marketplace, consumers received cefazolin at a lower price. Now, Keflin is sold at inflated prices; Lilly, not the consumer, is the beneficiary of the current market conditions. [Findings of Fact, ¶¶ 83, 102, 122.]

(footnote continued from preceding page)

F. 2d at 1347. Furthermore, if Lilly argues that invalidation of the Revised CSP merely saddles the market with an inefficient company (SmithKline) the proper response is also indicated in Judge Rosenn's opinion in *Coleman Motor Co.*, namely that Lilly had "permissible options available to it" which would have enabled it to compete with SmithKline without engaging in predatory practices. *Id.* at 1348.

C. Lilly's Right To Compete

It is indisputable that there are significant barriers to entry into the cephalosporin market. In view of these barriers, a monopolist does not receive immunity merely because it has priced the product in issue above its average cost. For that immunity is lost when it uses a pricing scheme linking the monopolistic products (Keflin and Keflex) with another competitive product (Kefzol) to deter SmithKline from entering or effectively competing in the cephalosporin market. We should be ever mindful that the gravamen of this complaint and my holding are not that the price which Lilly separately charges for Keflin or Keflex are unreasonable from an antitrust standpoint; the nub of this case is the linkage of these latter products in a pricing scheme to deter competition in Kefzol.

The anti-competitive game plan of Lilly is obvious, and sanctioning it would destroy competition in the cephalosporin marketplace of today and tomorrow. Lilly's game plan of today, whereby it uses its monopolistic power in one product (Keflin) as a lever for a packaging scheme with other Lilly products, does not escape violating the rules of the antitrust game simply because the defendant sets the price of each of its products above their average cost. For the foul is committed here by reason of the package scheme's interrelationship with the significant barriers to entry which permits Lilly to maximize its dominance and simultaneously drive a slightly less efficient competitor from the market. If Lilly can win today with such an anticompetitive plan, then in tomorrow's game, after the demise of its only real competitor (SmithKline), the defendant can then charge a very high price for its products unimpeded by the possibility that some new company might enter the field as a competitor. New entrants would not come because they would know that Lilly had

destroyed SmithKline's valiant bid to enter the cephalosporin market. Given Lilly's tactics, the consumer will not receive any benefits from the elimination of competitive pricing through the demise of SmithKline.

By this opinion we are not deterring Lilly from maximizing its profits if it wants to compete *product versus product.* Mr. Step spoke in glowing terms of his company's heritage of combining research and hard salesmanship to become a profit leader in his industry. High profitability and even greed are not anathema to the American competitive system. Making big profits under our system is as American as apple pie, but the dessert of huge profit cannot be obtained with the recipe of anti-competitive pricing schemes such as the Revised CSP. Lilly shall be free to compete against SmithKline product by product, but it cannot use schematic devices to link their products to maintain its prices and sales volume in the one field where it has such dominant and monopolistic power. See *Griffith, supra,* 334 U. S. at 108-109.

V. Conclusions Of Law

1. This Court has jurisdiction over the parties and the subject matter of this action under Sections three, four and sixteen of the Clayton Antitrust Act (15 U.S.C. §§ 14, 15 and 26) and Section one and two of the Sherman Antitrust Act (15 U.S.C. §§ 1 and 2).

2. Both parties to this action are engaged in interstate commerce in the marketing of cephalosporins, including cefazolin, throughout the United States. The actions of SmithKline and Lilly, described in the Findings of Fact, affect interestate commerce within the meaning of the Sherman Act.

3. The part of commerce or "relevant market" upon which the conduct described in the Findings of Fact operates is the nonprofit hospital market for cephalosporins. There exists sufficient disparities in the therapeutic capabilities of and physician interest in cephalosporins, as well as lack of price sensitivity between cephalosporins and other antibiotics, to define a separate and distinct market in cephalosporins as opposed to antibiotic or anti-infective drugs. The relevant geographic market is the United States.

4. Lilly has not sold its patented cephalosporin products on the condition that a purchaser buy another Lilly product and has not misused its patents on cephalosporin products to tie an unpatented product or products to them. The Revised CSP is not a tying arrangement and does not violate section one of the Sherman Act.

5. Lilly, as the dominant manufacturer of cephalosporins sold to nonprofit hospitals in the United States, and the holder of exclusive patent rights to four cephalosporin products (Keflin, Keflex, Kafocin and Loridine), controlled 89.8% of the cephalosporin product market as of the end of 1974. Lilly has the power to control prices in or exclude competition from the relevant market in this action and, therefore, Lilly has monopoly power in the cephalosporin product market.

6. Lilly, by linking its most powerful cephalosporin products, Keflin and Keflex, to its unpatented product, Kefzol, has unlawfully used its monopoly power to foreclose competition in and to exclude competition from the cephalosporin market. In so doing, Lilly has engaged in the willful maintenance of monopoly power in violation of section two of the Sherman Act.

7. Lilly's Revised CSP has restrained and is restraining the sale of cephalosporins marketed by competitors of Lilly, and particularly SmithKline's Ancef, to non-profit general hospitals in the United States in violation of Section two of the Sherman Act to the injury of both SmithKline and the hospital consumer.

8. Evidence as to Lilly's specific intent to monopolize has been shown by the operation, and not the mere institution of the Cephalosporin Task Force and, more importantly, by the institution and operation of the Revised CSP.

9. In adopting and implementing the Revised CSP, Lilly has committed the offence of monopolization in violation of Section two of the Sherman Act.

10. SmithKline has been injured in its business and will suffer further and continued injury from Lilly's illegal Revised CSP unless it is enjoined by this Court from operation under Section sixteen of the Clayton Act (15 U.S.C. § 26).

11. To prevent further injury to SmithKline from Lilly's illegal Revised CSP, Lilly should be enjoined from offering any rebate or sales promotion plan except on a product by product basis.

12. Any Finding of Fact which should also be deemed a Conclusion of Law is incorporated herein by reference.

13. For the foregoing reasons, the Permanent Injunction should be granted.

BY THE COURT:

s/ A. LEON HIGGINBOTHAM
J.

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

SMITHKLINE CORPORATION : CIVIL ACTION

v. :

ELI LILLY AND COMPANY : No. 75-1102

VI. ORDER

AND NOW, this 2nd day of November, 1976, it is hereby ORDERED and DECREED that plaintiff, within seven days, shall submit a proposed form of decree consistent with the foregoing opinion. The defendant shall submit its comments and proposed form of decree within seven days after the plaintiff's submission. After these documents are filed, a conference shall be held in order to set a date for the hearing on damages.

BY THE COURT:

s/ A. LEON HIGGINBOTHAM
J.

Appendix D.

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

SmithKline Corporation	:	Civil Action
Plaintiff	:	
v.	:	
Eli Lilly and Company,	:	
Defendant	:	No. 75-1102

Order for Permanent Injunction

And Now, this 28th day of December, 1976, it is hereby Ordered and Decreed that as of January 7, 1977 Defendant, Eli Lilly and Company, its officers, employees, agents and attorneys, and anyone else, including its distributors, acting in concert with them, are hereby permanently enjoined:

(a) From continuing to sell, offering to sell or promoting the sale of any cephalosporin product manufactured by Lilly to a hospital under Lilly's Revised Cephalosporin Savings Plan or any plan or practice which gives any such hospital a rebate for the purchase of any Lilly cephalosporin products on other than a product-by-product basis and from granting or paying any further rebates under this plan. (The term "hospital" as used in this Order means a non-profit hospital in the United States.)

(b) From selling, offering to sell or promoting the sale of, directly or indirectly, any cephalosporin product manufactured by Lilly to any hospital under any plan, practice or in a manner which gives any hospital a rebate based on the purchase of Lilly cephalosporin products on other than a product-by-product basis, such prohibited plans or practices to include, but not be limited to: (1) any plan or practice which requires the hospital to purchase any amount of any Lilly cephalosporin product or products; (2) any plan or practice which reduces the rebate

Appendix D.

to the hospital for any particular Lilly cephalosporin product or products because of the hospital's failure to purchase any one or more other Lilly cephalosporin products in any amount or amounts; (3) any plan or practice which increases the rebate to the hospital for any particular Lilly cephalosporin product because of the hospital's purchase of any other Lilly cephalosporin product in any amount; (4) any plan or practice which provides a rebate based upon the hospital's cumulative purchases of any two or more Lilly cephalosporin products. (The term "rebate" as used in this Order includes a dividend, commission, discount, lower price, premium or other inducement to purchase.)

(c) From linking Lilly's cephalosporin products, Keflin and Keflex, or either of them, to any other Lilly cephalosporin product, including Kefzol, in such a way as to foreclose competition in or to exclude competition from the hospital market for cephalosporins.

(d) This judgment is without prejudice to the Plaintiff later seeking a modification of the judgment order should anticompetitive practices persist as a result of any plan or practice which provides a rebate based in whole or in part upon the hospital's purchases of a Lilly cephalosporin product or products and a Lilly product or products other than cephalosporins.

(e) In view of the fact that Lilly is prohibited from offering rebates on its cephalosporin products on any basis other than on a product-by-product basis (i.e. Lilly is prohibited from offering cumulative volume rebates on its cephalosporin products), SmithKline is similarly prohibited from offering any rebates on its cephalosporin products on other than a product-by-product basis.

By the Court:

s/ A. Leon Higginbotham
J.

Appendix D.

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

SmithKline Corporation : Civil Action

v. :

Eli Lilly and Company : No. 75-1102

Order

And Now, this 29th day of December, 1976, because of a typographical error appearing in my order of December 28, 1976, paragraph (b)(1) of my Order For Permanent Injunction is hereby

Amended to read as follows:

(1) any plan or practice which requires the hospital to purchase any amount of any Lilly cephalosporin product or products in order to qualify for a rebate on any other Lilly cephalosporin product or products

By the Court:

s/ A. Leon Higginbotham